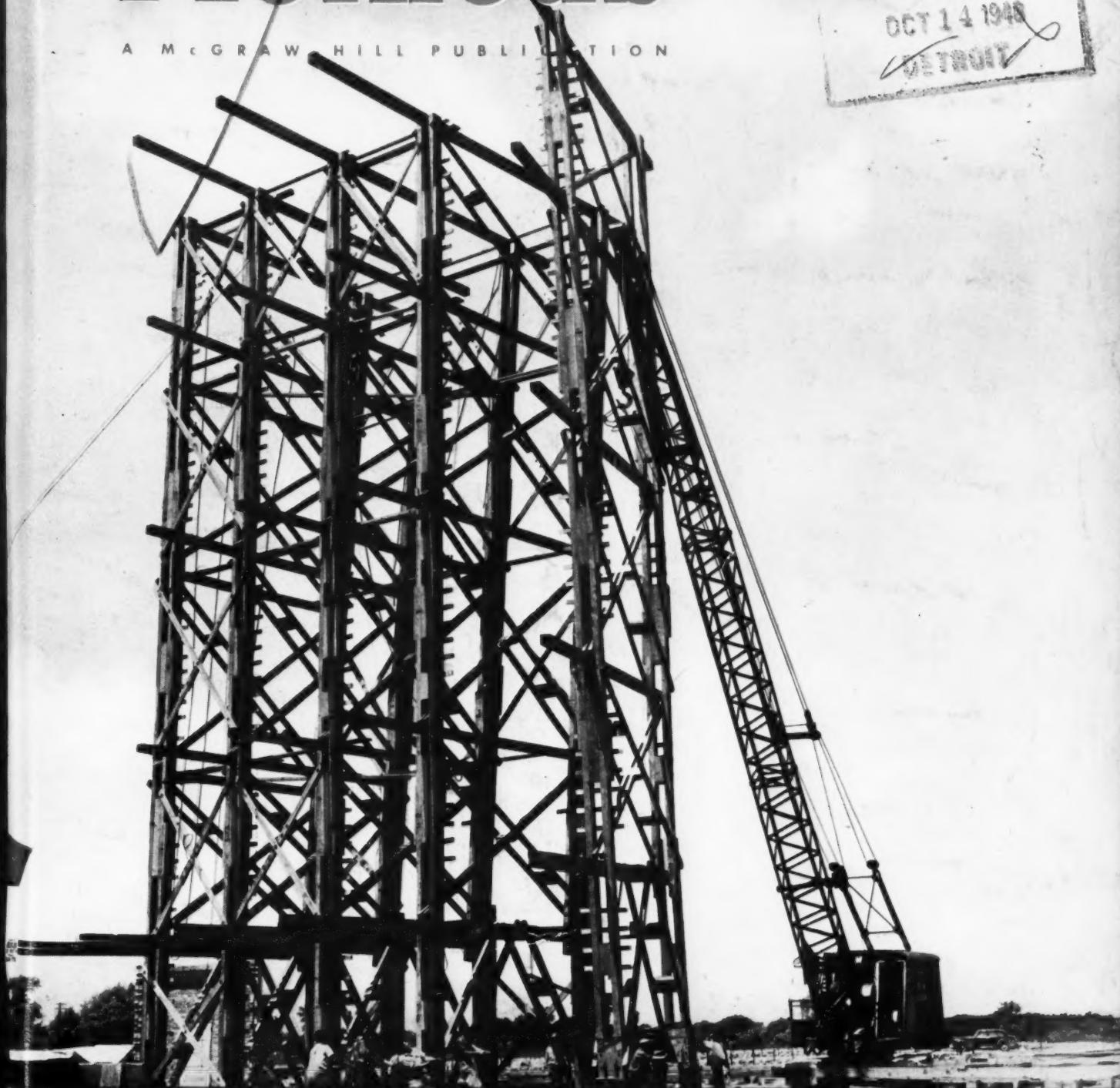
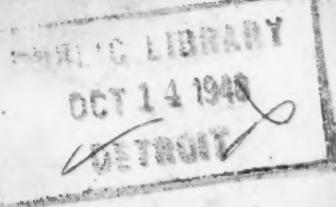


TECHNOLOGY DEPARTMENT

Construction Methods

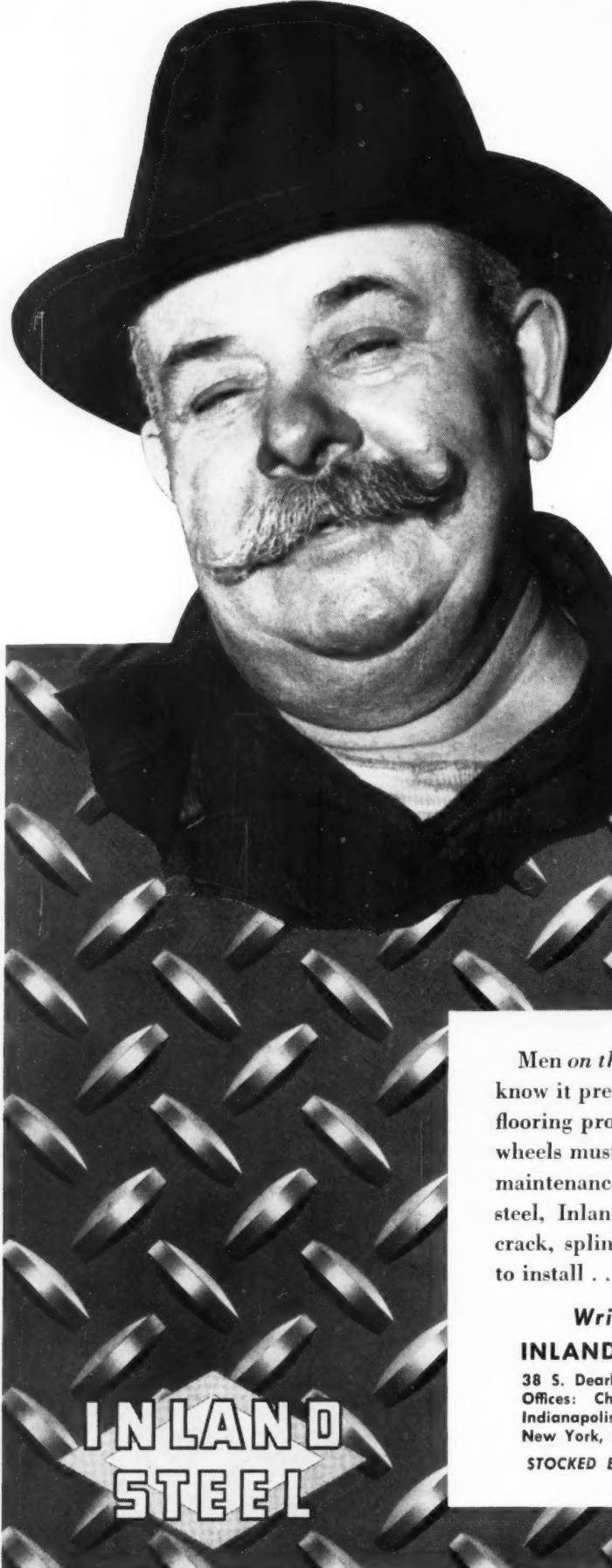
A McGRAW-HILL PUBLICATION

OCTOBER 1948



Towering 71-ft. bents of factory-framed timbers for main frame of outdoor theater near Chicago.

**Cofferdam in Soo Rapids • Concrete Houses Poured in Box Forms
Warped Beams Straightened by Heat • Various Tunnel Ground Supports**



SAFE FOOTING?

YOU BET!
We Use...
4-WAY FLOOR PLATE!

Men on the job like Inland 4-Way Floor Plate. They know it prevents slipping. This modern, skid-resistant flooring provides built-in protection wherever feet or wheels must go . . . floors, steps, ramps. What's more, maintenance is a simple matter. Made of hot-rolled steel, Inland 4-Way Floor Plate won't burn, warp, crack, splinter, or absorb liquids or odors. It's easy to install . . . lasts for years.

Write for Booklet

INLAND STEEL COMPANY

38 S. Dearborn St., Chicago, Ill. Sales
Offices: Chicago, Davenport, Detroit,
Indianapolis, Kansas City, Milwaukee,
New York, St. Louis, St. Paul.

STOCKED BY LEADING WAREHOUSES



**INLAND
STEEL**

INLAND 4-WAY FLOOR PLATE

When there's nothing more to say...
SEE YOUR
"QUICK-WAY"
DISTRIBUTOR

*Reg. U. S. Pat. Off.

MORE WORK PER DAY

Perfect balance and all steel construction for strength and lightness permit "QUICK-WAYS" to operate faster with greater loads. Any location accessible to a truck is accessible to a Truck Mounted "QUICK-WAY".

MORE PROFIT

It's all in the "QUICK-WAY" record of performance. In the final analysis that's the only thing that counts. You can't cash superlatives. See your "QUICK-WAY" Distributor for the performance figures, and ask a "QUICK-WAY" owner; there are both near you.

MORE USES PER MACHINE

Eight interchangeable attachments make "QUICK-WAYS" convertible on the job in minutes from Shovel to Clamshell, Crane, Dragline, Pile Driver, Scoop, Trench-Hoe or Backfiller.

MORE YEARS OF SERVICE

Many of the earliest "QUICK-WAYS" made are still profitably active—some nearly twenty years old. "QUICK-WAYS" are built to last against the toughest odds with minimum attention and expense.

MORE ECONOMY

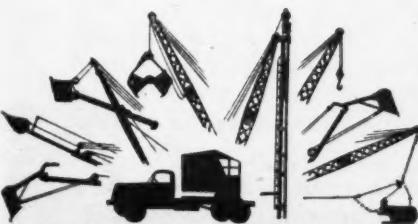
The simplest possible construction with many interchangeable parts makes for fast servicing and easy low-cost maintenance. No need to stock costly parts, and no long down time for repairs.

Service available from Distributors strategically located throughout the U. S. and worldwide.



For speed, portability, economy of operation, and adaptability to a wider range of jobs, nothing of comparable size equals a "Quick-Way" Truck Shovel.

"QUICK-WAY"
TRUCK SHOVEL CO.
DENVER, COLORADO



Model E: 4/10 cu. yd. cap., mount on any standard 5-ton truck.
Model J: 1/4 cu. yd. cap., mount on any standard 1 1/2-ton truck.

..team play that pays!



Team up two Oliver "Cletrac" crawler tractors with a bulldozer and front-end loader and you've got a winning combination that really pays off in fast, low-cost dirt moving.

With the exclusive Oliver "Cletrac" steering principle, the tractor-dozer unit cuts your clearing time to the minimum. There's always power on both tracks for biggest load-handling ability. You can speed up one track, slow down the other to offset the side pull of an off-center load. Time-wasting, power-wasting jackknifing is eliminated. And with constant two-track power,

operation on hills and slopes is safer.

Oliver "Cletrac" steering lightens the load of front-end loaders, too. There is no undue strain of tractor frames or steering mechanisms. This Oliver "Cletrac" loader is a fast-acting unit that really makes dirt fly! Controlled "tip-up" bucket prevents spillage of loose material. And, since there's no excess weight on the front of the tractor, lifting capacity is materially increased.

Why not have your Oliver "Cletrac" dealer show you how this hard-working "team" can speed your jobs?



OLIVER

Cletrac
SALES
SERVICE

"THE SIGN OF
EXTRA SERVICE"

Cletrac
a product of

The OLIVER Corporation

Industrial Division: 19300 Euclid Avenue, Cleveland 17, Ohio



WARRINGTON- VULCAN

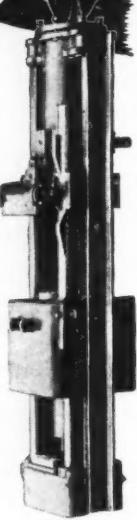
**Single-Acting
Steam**

PILE HAMMERS

At the tape for the miller, on the job for pile hammers—that's where durability counts. On thousands of pile driving jobs all over the world, Warrington-Vulcan Single-Acting steam pile hammers have demonstrated exceptional efficiency, power that drives piles of any description through heavily resistant soil . . . and the durability to stand up on job after job free from mechanical difficulty.

These rugged pile hammers operate at medium steam pressure, delivering a moderate frequency of telling, low velocity blows from a relatively heavy ram. All working parts are exposed for easy accessibility.

Write today for complete details.



VULCAN IRON WORKS
Since 1852

331 North Bell Avenue



Chicago 12 ... Illinois

Construction Methods

THE CONSTRUCTION MAGAZINE WITH PICTURE POWER

Established 1919

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ON THE COVER—Factory-fabricated timbers, bolted into 71-ft. bents and erected on site, make a quick job of building an outdoor movie screen near Chicago. More than 1,500 large timbers—up to 36-ft. 8x12's—were cut to size and length, routed for 6,000 4-in. Teco connectors and bored for 4,200 $\frac{3}{4}$ -in. bolts in shops of Edward Hines Lumber Co.; then were assembled and erected by American Roof Truss Co.; both of Chicago. Complete structure includes 52-ft. center section 89 ft. high with two 52x71-ft. wings, and required 60,000 b.ft. of timber. Benjamin H. Stein was architect; Henry Miller, consulting engineer.

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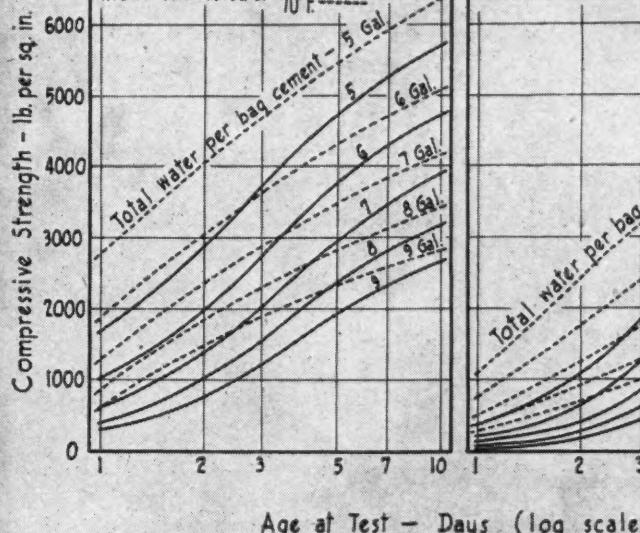
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'INCOR' 24 HOUR CEMENT

Based on Tests of 6 x 12 in cyl's - 5 Mixes, 4 cyl's each for test at 1, 3, 5, 7 and 10 days.

Made and Cured at 50°F. —
70°F. —



LONE STAR PORTLAND CEMENT

Based on Tests of 6 x 12 in cyl's - 5 Mixes, 4 cyl's each for test at 1, 3, 5, 7 and 10 days.

Made and Cured at 50°F. —
70°F. —

SERIES 49 - EFFECT OF TEMPERATURE ON COMPRESSIVE STRENGTH

'INCOR'

Safeguards Against Cold Fall Nights

EXACTLY 20 years ago this Fall, New York Central Railroad's Ossining, N.Y. station plaza was repaved. 'Incor' saved 30 days' construction time, avoided cool-Fall-night freezing risk. Traffic is heavy — *but the 20-year-old 'Incor' slab is as good as on opening day.* Graph above shows one reason why. Without protection, at 50 degrees — a condition common to this time of year — 'Incor' concrete attains stripping strength, is safe from freezing, 2 or 3 days sooner than ordinary concrete. And the lower the temperature, the greater the 'Incor' advan-



tage. Even in dead of winter, 'Incor'* concrete is service-strong, safe from freezing, with only ONE DAY heat curing at 70°, saving 2 or 3 days heating expense on each pour — a saving that dollar-wise is bigger than ever, at today's fuel and labor costs! For timely book, "Cold Weather Concrete," write Lone Star Cement Corporation, 342 Madison Ave., New York 17.

* Reg. U. S. Pat. Off.



LONE STAR CEMENT CORPORATION

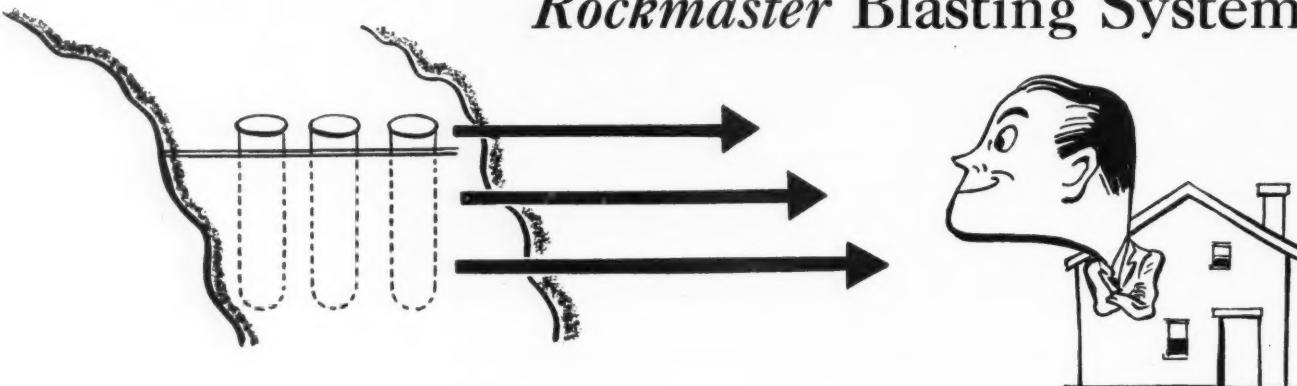
Offices: ALBANY • BETHLEHEM, PA. • BIRMINGHAM • BOSTON • CHICAGO • DALLAS • HOUSTON • INDIANAPOLIS • JACKSON, MISS. • KANSAS CITY, MO. • NEW ORLEANS • NEW YORK • NORFOLK • PHILADELPHIA • ST. LOUIS • WASHINGTON, D. C.

LONE STAR CEMENT, WITH ITS SUBSIDIARIES, IS ONE OF THE WORLD'S LARGEST CEMENT PRODUCERS: 15 MODERN MILLS, 27,000,000 BARRELS ANNUAL CAPACITY

Yesterday... by Ordinary Blasting Methods



Today... by the *Rockmaster* Blasting System



"We shot over three times as many holes and received no complaints!"

A big limestone quarry received so many complaints about noise and vibration that they were forced to cut way down on the number of holes they could fire by standard methods. Costs per ton of rock went soaring.

Then they called in Rockmaster—and quickly found that with the Rockmaster system they could fire over three times as many holes with approximately four times as much dynamite without receiving complaints. And this is not an isolated case, by any means.

This fact alone is important to quarries, construction jobs and coal stripping operations, but there is more to it than the mere silencing of complaints. The Rockmaster system gives better fragmentation, far less "back-break" in quarries and less pulverizing of coal in strip pits. It frequently happens that the Rockmaster system permits a wider spacing of drill holes with a saving of drilling and explosives cost, too.

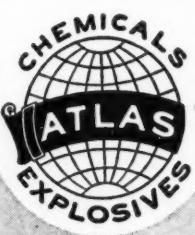
Call in the Atlas representative today. He will be glad to give you the benefit of Atlas pioneering in milli-second delay blasting.

"ROCKMASTER"—Trade Mark
Manasite: Reg. U. S. Pat. Off.

ROCKMASTER GIVES
YOU THE GREATER
SAFETY OF MANASITE
DETONATORS



*Less Bark...
More Bite*



ATLAS EXPLOSIVES

"Everything for Blasting"

ATLAS POWDER COMPANY, Wilmington 99, Del. • Offices in principal cities • Cable Address—Atpowco

NO OTHER STANDARD PAVER COULD DO THIS JOB!



Here's a typical example of how Ransome Blue Brute versatility pays off when you're up against out-of-the-ordinary conditions. With the "live" boom-and-bucket you don't have to split batches. Instead, you discharge the complete batch into the bucket and run out the bucket to wherever needed. Then, with positive hydraulic control, you open the bucket doors *just enough to discharge the required amount!*

You can see how this patented Ransome feature eliminates costly accessories and extra labor — and

it's standard equipment only on Blue Brute Pavers!

Many other advantages show why 34E Single or Dual Drum Pavers do *more* jobs — faster, better, for less cost. Your own jobs — paving or non-paving — will benefit by Ransome's famous mixing action, accurate water-measuring, all-weather batchmeter and foolproof, self-cleaning, fast-charging skip.

Get the whole story on Blue Brute Pavers from your nearby Worthington-Ransome Distributor, or write for Bulletin 208.

R8-5

WORTHINGTON PUMP AND MACHINERY CORPORATION

Worthington-Ransome Construction Equipment Division, Holyoke, Mass.
Distributors In All Principal Cities

HERE ARE THE FACTS

The Holland Construction Company's Ransome Blue Brute 34E Dual Drum Paver pouring concrete for the Country Club Bayou storm sewer in Houston, Texas. Because of the distance and depth involved, a special "elephant's trunk" funnel is used.

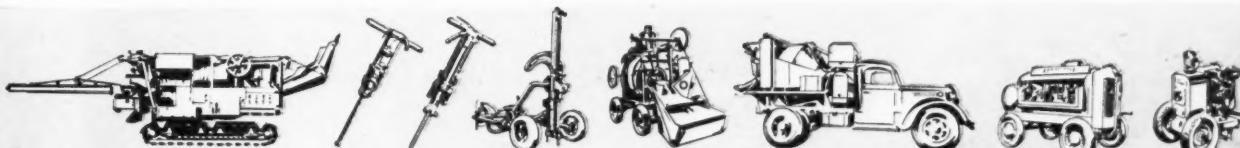
Only Blue Brute's exclusive, hydraulically operated "live" boom-and-bucket, plus its long reach, permit completely controlled pouring at any rate and any angle — a vital necessity on jobs like this, with hard-to-get-at forms!

Reports from similar types of jobs
state that savings effected by this
exclusive Ransome feature exceed
\$100 daily — by eliminating an
extra 1½ yd. crane, crane operator
and up to 4 additional men.

WORTHINGTON



BUY BLUE BRUTES



IF IT'S A CONSTRUCTION JOB, IT'S A BLUE BRUTE JOB



RIVETS

Bethlehem Rivets are made in a complete range of styles and sizes, and furnished to all standard specifications, including high-strength-structural and Mayari R (low-alloy, high-strength).

"Small" rivets are supplied in sizes from $\frac{1}{4}$ in. to $\frac{7}{16}$ in., inclusive, and in standard lengths. They come with button, cone, countersunk, pan and flat heads.

"Large" rivets are made hot or cold, in sizes from $\frac{1}{2}$ in. to $1\frac{3}{4}$ in., and in all lengths. They are furnished with button, high-button, countersunk, round-top countersunk, cone and pan heads; also swell neck.

BETHLEHEM STEEL COMPANY
BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by
Bethlehem Pacific Coast Steel Corporation

Export Distributor
Bethlehem Steel Export Corporation



Other Bethlehem Construction Fastenings

TIE RODS • TURNBUCKLES • CLEVISSES • SPIKES • BOLTS and NUTS

EUCLID EFFICIENCY

SPEEDS ANOTHER TVA PROJECT



Nearly four million cubic yards of earth and rock will go into Watauga Dam, a TVA flood control and power project, near Elizabethton, Tennessee. The dam will have a fill structure 900 feet long and 318 feet high, with a base width of 1,275 feet.

Because of their proved efficiency and rugged staying power, "Eucs" have been widely used for construction of earth-fill dams. At Watauga 26 Bottom-Dump and 15 Rear-Dump Euclids haul earth and rock on a twenty-four hour schedule. A Euclid Loader keeps pace with the speed and efficiency of Euclid hauling equipment by providing fast mobile loading of the Bottom-Dumps.



From borrow pit to fill, "Eucs" haul big payloads at Watauga under a wide range of operating conditions. Of sturdy but simple construction, Euclid equipment gives peak performance day after day at low maintenance cost.

Several new models have been added to the Euclid line of earth moving equipment—write or phone your Euclid distributor or representative for descriptive literature and information.

The EUCLID ROAD MACHINERY Co.
Cleveland 17, Ohio



EUCLIDS



Move the Earth

Driving Piles In CITY STREETS

The pounding of pile hammers on busy city thoroughfares announced the start of the long-needed lengthening of New York's I. R. T. subway stations. They were McKiernan-Terry Hammers, driving long steel H-beam supports for the new station extensions. Once more, as on pile-driving projects of every type for the past fifty years, McKiernan-Terry Hammers demonstrated their power and dependability.

Contractors and engineers have little difficulty in finding a hammer tailored to any specified needs as to weight, power and penetration in the McKiernan-Terry standard line . . . a choice of 10 double-acting, 5 single-acting hammers and 2 double-acting extractors.

... Helpful Information



MK-259

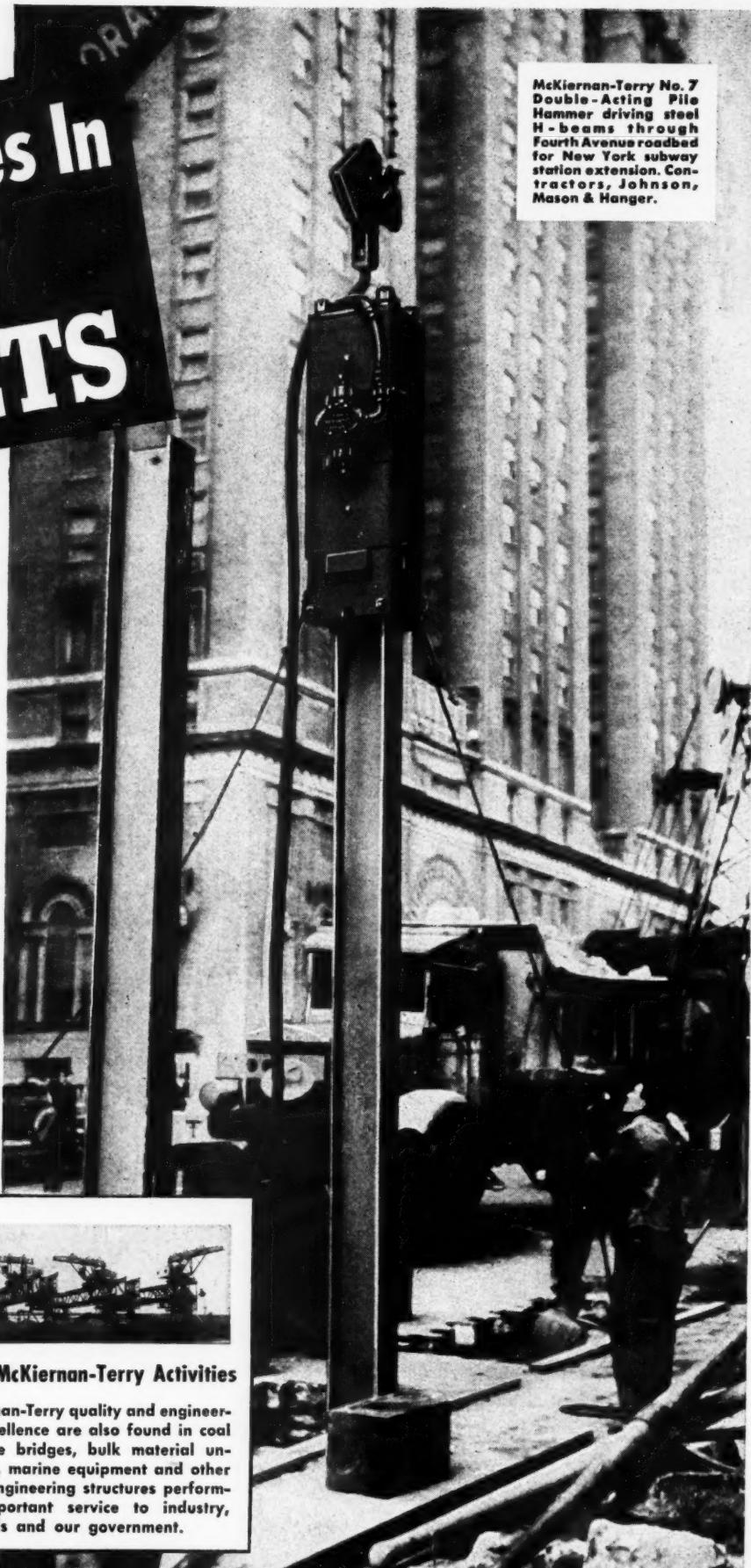
For specifications and other information on the McKiernan-Terry line, with pictures of hammers at work, write for new McKiernan-Terry Bulletin No. CIR2.

**McKIERNAN-TERRY
CORPORATION**
Manufacturing Engineers
14 PARK ROW, NEW YORK 7, N. Y.

Other McKiernan-Terry Activities

McKiernan-Terry quality and engineering excellence are also found in coal and ore bridges, bulk material unloaders, marine equipment and other large engineering structures performing important service to industry, railroads and our government.

McKiernan-Terry No. 7
Double-Acting Pile
Hammer driving steel
H-beams through
Fourth Avenue roadbed
for New York subway
station extension. Con-
tractors, Johnson,
Mason & Hanger.



McKiernan-Terry PILE HAMMERS AND EXTRACTORS



*If I were going
to buy
a SHOVEL...*

... I'd check on the performance
of equipment operating on the tough, high pressure
jobs now under way and find out what shovel stands
up under the punishment of rock digging, is easy on
maintenance and economical to operate."

... We know the answer will be Northwest first.

NORTHWEST ENGINEERING COMPANY
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Chicago 3, Illinois

NORTHWEST
SHOVELS • CRANES • DRAGLINES • PULLSHOVELS





THE Preformed Challenge

Here's a **CHALLENGE** to the few who have not used Preformed Wire Rope:

•

Put Preformed to work on your job.
See for yourself if it isn't

- easier to install
- safer to use
- longer lasting

... and see if it doesn't

- **COST LESS TO USE**

That's the Preformed challenge



MACKS clear the way on Nation's New Housing Projects

- New housing ranks foremost among the nation's urgent needs. Clearing the way for thousands of dwelling units now under construction are fleets of hard-working Mack dump trucks — today, as in the past, top favorites with cost-conscious contractors.

The Mack Model LJ six-wheeler shown here is one of a busy fleet operated by D'Aquila Bros. of New York, contractors for excavation, foundation and fill on one of the city's huge housing projects.

Long-lasting Mack stamina and economy have proved profitable for D'Aquila Bros. over long

periods of time. Several Macks in their fleet are still putting in a good day's work after 19 years of service.

It will pay you to take a tip from the experience of leading contractors who year-in, year-out consistently repeat on tough, dependable Mack trucks. Find out what Mack's unrivaled economy and enduring reliability can do to cut costs and increase profits on your particular job. Write or call your nearest Mack branch or dealer for full details on Mack's complete line of dump trucks from 3 to 30-ton payload capacity.



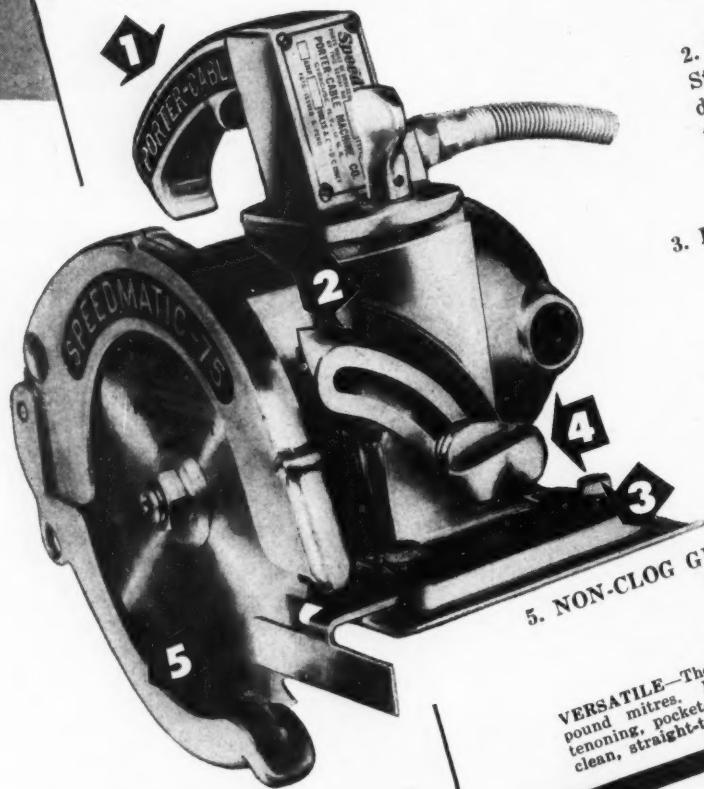
Mack Trucks, Inc., Empire State Building, New York 1,
New York. Factories at Allentown, Pa.; Plainfield, N. J.;
New Brunswick, N. J.; Long Island City, N. Y. Factory
branches and dealers in all principal cities for service
and parts. In Canada, Mack Trucks of Canada, Ltd.

SINCE 1900, AMERICA'S HARDEST-WORKING TRUCK

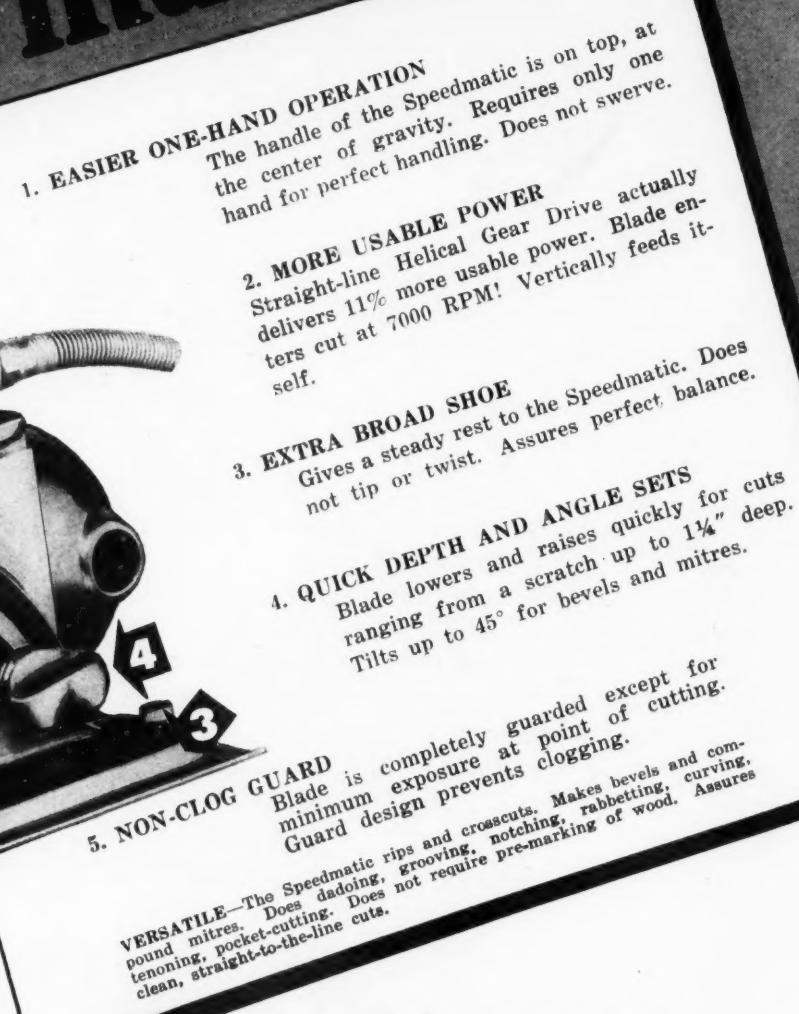
**No Other Saw
GIVES YOU ALL
THESE FEATURES!**

THE PORTER-CABLE PORTER-CABLE PORTER-CABLE

THESE PORTER-CABLE Speedmatic SAW



Does More Work in Less Time . . .



- 1. EASIER ONE-HAND OPERATION**
The handle of the Speedmatic is on top, at the center of gravity. Requires only one hand for perfect handling. Does not swerve.
- 2. MORE USABLE POWER**
Straight-line Helical Gear Drive actually delivers 11% more usable power. Blade enters cut at 7000 RPM! Vertically feeds itself.
- 3. EXTRA BROAD SHOE**
Gives a steady rest to the Speedmatic. Does not tip or twist. Assures perfect balance.
- 4. QUICK DEPTH AND ANGLE SETS**
Blade lowers and raises quickly for cuts ranging from a scratch up to 1 1/4" deep. Tilts up to 45° for bevels and mitres.
- 5. NON-CLOG GUARD**
Blade is completely guarded except for minimum exposure at point of cutting. Guard design prevents clogging.

VERSATILE—The Speedmatic rips and mitres. Does dadoing, grooving and crosscuts. Makes bevels, curving, rabbetting, and compound mitres. Does not require pre-marking of wood. Assures clean, straight-to-the-line cuts.

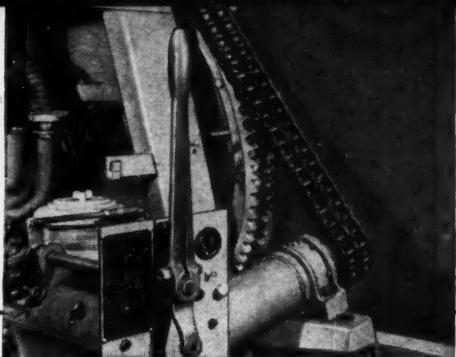
- No other power saw on the market compares with the SPEEDmatic in making Big Production EASY! See it. Try it. And you'll buy it!

Porter-Cable

MACHINE COMPANY

Page 14 — CONSTRUCTION METHODS — October 1948

Syracuse, New York

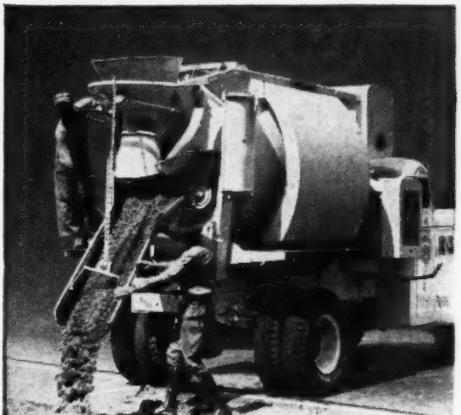


THE CHAIN TAKES THE STRAIN

The exclusive Rex chain drum drive eliminates stresses and strains. The chain protects transmission . . . gears . . . shafting . . . power plant. It eliminates binding between drum and transmission as the truck chassis weaves over uneven ground. The chain effectively dampens vibration, assuring far less driver fatigue.

Life-Saver Cost-Saver Time-Saver

REX
**Hi-Discharge
Moto-Mixer**



Lower Maintenance and Operating Cost

The Rex drum drive is a weight-saver. It eliminates the need of bulky, excessively heavy transmission cases, shafting, bearings, etc. This saving in weight here permits Rex to build added strength into parts where it is really needed . . . blades, drum rollers, drum shell and drum support. Here's why Rex gives you lower maintenance costs and assures less operating time.

Time-Saving, Fast Discharge

You'll save minutes every batch with Rex Moto-Mixers. Since Rex mixes in the discharge direction, the batch is always right up at the opening . . . ready to come out in a hurry. Deep spiral scoops speed the batch out *fast!* Remember, it's at the job site where speed is important to avoid holding up your customer's schedules.

Combine all these features and you'll see why Rex is far more economical to operate and maintain. For all the facts, see your Rex Distributor or write for Bulletin No. 468. Chain Belt Company of Milwaukee, 1664 West Bruce Street, Milwaukee 4, Wis.

CHAIN BELT
REX
COMPANY

CHAIN BELT COMPANY OF MILWAUKEE
REX CONSTRUCTION MACHINERY
Moto-Mixers • Moto-Agitators



MAINTENANCE SAVINGS EVERYWHERE — Texaco Rustproof Compound can save maintenance costs not only on contractors' equipment, but on gas holders, water-works, sewage disposal plants, bridges — wherever metal is exposed to weather, or most of the corrosive chemicals and fumes. Read the whole money-saving story in Texaco's 36-page book "Rust Prevention." Send for your copy today.

Tune in . . .
TEXACO STAR THEATRE
every Wednesday night
starring
Milton Berle.
See newspaper for
time and station.



TEXACO

FIGHT RUST

3 Ways...and Win

Protect your equipment easily and effectively

... with Texaco Rustproof Compound

You won't have big bills for rust damage when the exposed surfaces of your equipment are protected with *Texaco Rustproof Compound* or *Texaco Rustproof Compound (Spray)*. In either form, *Texaco Rustproof* effectively fights rust 3 ways:

1. Guards the metal against rust by sealing it in a soft, self-healing, waterproof film.

2. Penetrates existing rust, protects against further rusting.

3. Loosens existing rust, makes it easier to remove.

Texaco Rustproof is long lasting, and is easy to apply — easy to remove with a kerosine-saturated cloth. And the cost of protecting every piece of your equipment is less than you might have to pay to repair rust damage to a single machine.

Get *Texaco Rustproof Compound* or *Texaco Rustproof Compound (Spray)*, and helpful suggestions for their use, from the nearest of the more than 2300 Texaco Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

Rustproof Compound

S-U-H-B
*speeds
the job
with*

"CATERPILLAR"

2



3



1 The "heart-throb"—main pumping inlet on the Central Valley Project. "Caterpillar" equipment dominates the picture.

2 "Caterpillar" D8 Tractor pulling "Caterpillar" Elevating Grader loading "Caterpillar" W10 Wagons pulled by "Caterpillar" DW10 Tractors.

3 "Caterpillar" W10 Wagon, pulled by "Caterpillar" DW10 Tractor, receiving fast-haul loads from dragline.



W. R. ('Bill') Mathews, superintendent, says: "Tractors?... I don't think there's anything that will beat 'Caterpillar'. Power and dependability are all anybody could ask. Been in the construction game since 1925 and have used 'Caterpillar' power ever since."

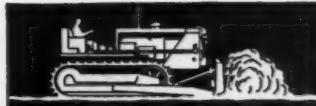
R" ZONED EQUIPMENT

Numbered are the days when important earthmoving projects will still be undertaken with poorly matched machinery. "Caterpillar" Zoned Equipment—specially designed to work in unison—has set new standards of construction speed that make successful bidding against it no easy matter.

Take the case of Stoltz & United Concrete-Harrison & Bell ("S-U-H-B"): Working on a 960-day completion contract, their handling of a 4,800,000-yard "slice" of California's Central Valley Project brought into action "Caterpillar" units that include D8 and D7 Tractors with bulldozers for leveling and push-dozers for scraper loading; a fleet of DW10 (wheel-type) Tractors and W10 Wagons for fast, long hauling from dragline and "Caterpillar" Elevating Grader; a No. 12 Motor Grader for building and maintaining haul roads. "Every day a big-capacity day!"

CATERPILLAR TRACTOR CO. • PEORIA, ILLINOIS

"Caterpillar" builds units you need to zone equipment for lowest costs on earth:



1 Track-type tractors for "push"-distance earthmoving.



2 Track-type tractors for loading and pulling scrapers on medium hauls.



3 Wheel-type tractors for high-speed long hauls (with scrapers or wagons) — plus motor graders for finishing and haul-road maintenance.



1

CATERPILLAR DIESEL

REG. U. S. PAT. OFF.
ENGINES • TRACTORS • MOTOR GRADERS • EARTHMOVING EQUIPMENT

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"Trac-
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Motorola FM 2-way radio



YEARS AHEAD OF THE FIELD!

NO OTHER MANUFACTURER CAN MATCH
THIS LIST OF *Motorola* RADIO
COMMUNICATION "FIRSTS"

first with noise-compensated squelch that makes present day 2-way radio communications practicable. (U.S. Patent 2343115)

first to develop the vibrator power supply in receivers—now accepted as the best power supply system.

first with 20 D.B. quieting at 0.4 microvolt input.

first to build successfully equipment for the 152-162 mc. band.

first with "Precision Selectivity" for channel conservation.

first with Precision Cavity for intermodulation control.

first with dozens of other major developments in radio communications.

Inspired engineering and careful craftsmanship are your guarantee that the *Motorola* equipment you buy today will be years ahead for years to come!

Of course the *Motorola* equipment you buy today will last longer—that has been proved by hundreds of official records. But just as important to you is the fact that the *Motorola* equipment you buy today is guaranteed against early obsolescence by the many advanced developments it incorporates—developments that will not be duplicated in other equipment for months—or years. *Motorola* is able to stay ahead of the field because

it has the largest FM 2-way radio communications laboratory and more qualified radio communications developmental engineers than any other manufacturer in the industry—BAR NONE.

See for yourself how much MORE *Motorola* gives you. A *Motorola* Communications Engineer will be glad to call and discuss radio communications as it concerns your specific problems. He'll put you in touch with people in your business who are using *Motorola* equipment. He'll give you FACTS, not fiction—FIGURES, not fables—**WRITE TODAY.**

Motorola
FM 2-WAY RADIO

Motorola Inc.

Communications Division: 4545 Augusta Blvd., Chicago 51, Ill.
Canadian Distributor: Rogers Majestic Ltd., Toronto-Montreal

Barber Greene



more capacity

more speed

more usefulness

THE 545A BUCKET LOADER

Every feature in the rugged Barber-Greene Model 545A Bucket Loader helps you to get more yards moved per hour, more jobs done per day.

For instance: there are primary and secondary transmissions . . . a separate crowding clutch . . . three forward speeds . . . a quick reverse. The 8-foot synchronized spiral feed keeps the hard-lipped buckets filled to capacity. Double-wheel drive through big, heavy-duty tires means positive traction and extra power. And you'll like the three-point chassis mounting . . . the light-handed steering.

Ask your B-G distributor for the whole story . . . you'll want to put a Model 545A on your payroll.



FAST ON THE ROAD, TOO

It's a great time-saver—fast on the road, fast on the job. Notice how the boom nestles horizontally for transport, and how it reduces overall height. Boom can be tilted onto saddle quickly and easily without using a wrench. Takes only a few minutes to get ready to move.



BARBER • GREENE COMPANY, AURORA, ILLINOIS

Constant flow Equipment



LOADERS



PERMANENT CONVEYORS



PORTABLE CONVEYORS



COAL MACHINES



BITUMINOUS PLANTS



FINISHERS



DITCHERS

MORE BATCHES PER

...even quality mix every



CHECK THESE KWIK-MIX Bituminous MIXER ADVANTAGES:

✓ **EASY TO LOAD** by hand, from truck or hopper. Smooth, flow-line skip is power-raised . . . can run on extension track for elevated mixer operation. Skip easily removed to charge drum direct from hoppers.

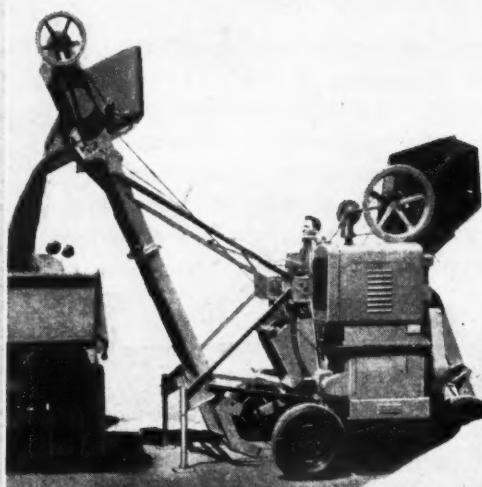
✓ **NON-ТИLTING DRUM** is a rigid, integral part of the frame . . . no tilting stresses or strains . . . gives long, trouble-free service.

✓ **FAST, THOROUGH MIX** . . . pug-mill type mixer has blades specially designed for bituminous materials . . . push and thoroughly work aggregate and oil from end to center . . . completely coat each particle.

✓ **ACCURATE MIXING CONTROL** . . . 1½" asphalt pump maintains continuous oil circulation to and from

▲ STATIONARY PLANT . . .

Kwik-Mix bituminous mixers are easily adapted to stationary overhead operation. Above is the 10 cu. ft. model, mounted on skids. One man handles the complete operation . . . controls mixed batch discharge directly into truck.



... SETS UP ANYWHERE ▶

For discharging above ground level, special tower attachment is available.

Skip is power-operated . . . discharge at top is completely automatic. Collapse tower for road clearance.



KWIK-MIX

KWIK-MIX COMPANY

Bituminous

Port Washington, Wisconsin

CEM 10

HOUR batch

supply tank . . . generating-type burners provide close temperature control of mixing drum . . . non-splash measuring tank assures uniform oil distribution for even-texture mix every batch.

✓ **6-SECOND DISCHARGE . . .** wide discharge door and sweeping blade action discharge complete batch in about 2 revolutions of paddle shaft . . . step up batches per hour . . . boost daily production.

✓ **FREE-FLOWING POWER . . .** anti-friction bearings, continuous lubrication of reduction gears in oil-tight casings, provide free flow of power with minimum friction loss . . . let you operate skip, oil pump and discharge all at same time.

✓ **2 HEAVY-DUTY SIZES . . .** 14 cu. ft., and 10 cu. ft. . . . stationary or portable models available . . . fit all your requirements for paving, maintenance or patch work.

◀ PORTABLE . . .

Mounted on pneumatic tires, Kwik-Mix bituminous mixers are easily moved. Quick end discharge for direct pouring saves time on patch work. Stub axles allow more space for dumping into wheelbarrows. (10 cu. ft. model illustrated in photograph.)

BITUMINOUS MIXER CATALOG AVAILABLE . . .

Write for new, fully illustrated catalog on the versatile No. 14 and No. 10 bituminous mixer . . . or ask your Kwik-Mix distributor to show you what these mixers can do on your jobs.

MIXERS

Koehring Subsidiary

ROADBUILDERS' batchers handle 2 or 3 materials

Johnson Roadbuilders' Batchers are completely portable . . . adaptable to fit any bin . . . provide accurate control. Single-material batcher (foreground) can be arranged for gang operation, to batch 2 materials in practically same time as 1. Multiple-aggregate batcher (background) handles 2 or 3 materials. Other Johnson sizes, types to fit production problems of any plant.



C. S. JOHNSON

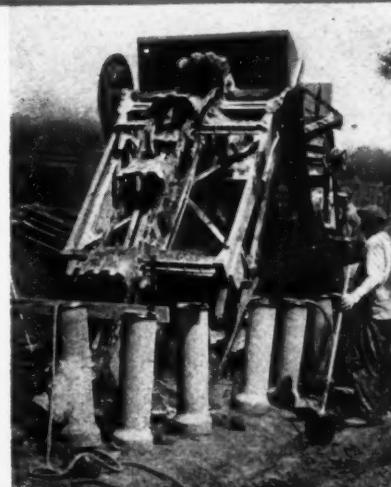
Koehring Subsidiary

COMPANY
Champaign, Ill.

310 TRENCHLINER* digs 15' deep, up to 54" wide

For your heaviest sewer, gas and water-main excavation, check this heavy-duty Parsons 310 Trenchliner. Digs to 15' deep . . . 54" wide . . . has 45 digging speeds from 8" to 186" per minute. Boom is telescopic, easily adjusted for digging depths . . . shifts to cut within 16" of either side of machine. Power shifts the arct-type spoil conveyor. 3 smaller Trenchliners also available.

*Trademark Reg. U.S. Pat. Off.



PARSONS

Koehring Subsidiary

COMPANY
Newton, Iowa

MUD-JACK* cuts sub-grade stabilization costs

Where pavements, foundations, sidewalks, curbs or gutters are beginning to settle, Koehring Mud-Jack is a low-cost, easy answer to your problems. Pumps inexpensive soil-cement slurry beneath slab . . . raises structures to original level . . . leaves firm, lasting support. Model 10 illustrated. Ask too, about big Model 50 Mud-Jack for extensive highway use.

*Trademark Reg. U.S. Pat. Off.



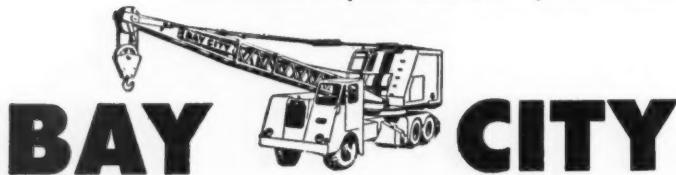
KOEHRING

COMPANY
Milwaukee 10, Wis.

BAY CITY SHOVEL HELPS DOUBLE PRODUCTION OF FINE SAND



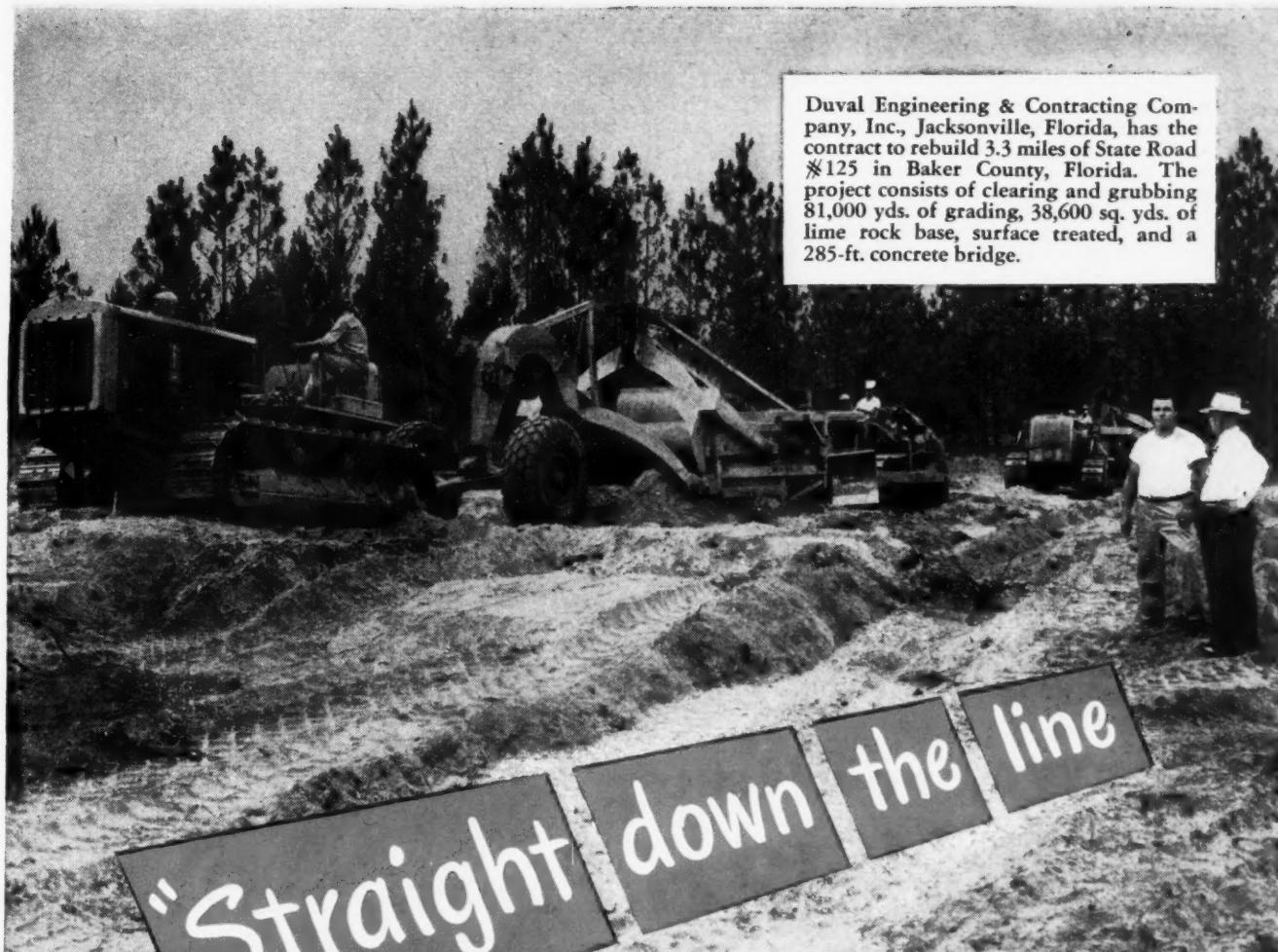
When the Aubuchon Silica Mining Co., of Crystal City, Mo., moved to a new site to recover high grade silica sand for crystal glass manufacturers, this heavy-duty Model 45 Diesel powered shovel was a determining factor in production plans that doubled sand output. It proved again the versatility of Bay City equipment and its ability to handle jobs calling for efficient, trouble-free production. For complete particulars and assistance in choosing material-handling and excavating equipment best suited to your needs, see your nearest Bay City dealer or write direct.



**SHOVELS • CRANES • HOES
DRAGLINES • CLAMSHELLS**

BAY CITY SHOVELS, INC.
BAY CITY, MICHIGAN

See your nearest dealer for Bay City excavating and material handling equipment in sizes from $\frac{1}{2}$ to $1\frac{1}{4}$ yards having crane rating up to 20 tons. Both crawler and pneumatic tire mounting.



Duval Engineering & Contracting Company, Inc., Jacksonville, Florida, has the contract to rebuild 3.3 miles of State Road #125 in Baker County, Florida. The project consists of clearing and grubbing 81,000 yds. of grading, 38,600 sq. yds. of lime rock base, surface treated, and a 285-ft. concrete bridge.

we get better performance

with **GULF QUALITY PRODUCTS"**

says Superintendent C. P. Johnson

We're partial to Gulf products because they help us get top performance from every piece of equipment," says Superintendent C. P. Johnson of Duval Engineering & Contracting Company, Inc. "On every job we get good fuel mileage and low maintenance costs."

Duval Engineering & Contracting Company is one of many leading contractors who find that Gulf quality petroleum products are good profit insurance. Their extra value shows up particularly on tough schedules and under punishing operating conditions. Gulf lubricants provide

greater protection against delays caused by mechanical troubles—and Gulf fuels help contractors get full engine power and efficiency.



Gulf Oil Corporation • Gulf Refining Company

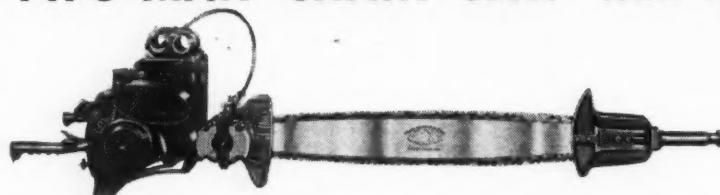
Division Sales Offices:

Boston • New York • Philadelphia • Pittsburgh • Atlanta
New Orleans • Houston • Louisville • Toledo



Soft woods, or hard woods, the Disston 12 H.P. Chain Saw takes them all in stride.

NEW!
THE EXTRA POWERFUL
DISSTON 12 H.P. HEAVY-DUTY
TWO-MAN CHAIN SAW with Mercury Gasoline Engine



Put this husky Disston Chain Saw to work on your toughest timber-cutting jobs. See how fast it gets them done. Note how smoothly the saw cuts through knots and wet, frozen or abrasive woods. It's built specially for work like that . . . with extra reserve power and extra ruggedness for dependable performance in ALL heavy-duty felling and bucking operations.

This new model retains all the fine qualities of other Disston chain saws, PLUS added power and other features to further boost your production and cut costs. To name a few:

New 12-hp., 2-cycle, 2-cylinder engine . . . an abundance of power.

New—Quick-Detachable Tail Stock.

New Guide Rail.

New Transmission . . . with more rugged housing to withstand rough treatment.

New Abutment Plate . . . shape provides additional protection for transmission by keeping saw out from under a bucking cut.

Write for full particulars and name of nearest dealer.

HENRY DISSTON & SONS, INC., 1048 Tacony, Philadelphia 35, Pa., U.S.A.

Canadian Factory : 2-20 Fraser Ave., Toronto 1, Ont.



EASY TIME PAYMENT PLAN

(Available only in U.S.A.)

The Disston Time Payment Plan, serviced by Walter E. Heller & Co., installment experts, provides a sound, generous, easy-to-pay method of financing the purchase of a Disston Heavy-Duty Two-Man Chain Saw.

20% Down Payment

(For 36" Model at Present Prices)

\$131 DOWN

APPROX. \$48 PER MONTH

12 MONTHS TO PAY

**AUTHORIZED DEALERS and
CERTIFIED SERVICE STATIONS**

from coast to coast always ready to serve you. Let your dealer show you how easy it is to own one of these profit making saws . . . how easy it is to pay.



HERE'S YOUR *New BUCKEYE DITCHER* NOW IN FULL PRODUCTION



THE 401

PONY DITCHER

The 401 Pony—smallest ditcher built. Don't waste time and money, moving earth to lay small pipe. Put the rugged Pony-sized 401 to work ditching for service pipe, cable and buried irrigation pipe. Only 6" and 8" cutting width; 4' cutting depth . . . it leads the parade of new Buckeyes coming off the assembly lines.

THE 406

With the 406 General Utility Ditcher you can handle a wide range of gas, sewerage, water, telephone conduit and highway drainage, fast and economically. Gives you wide choice of speeds and feeds. Renewable easy-change rooter bits on clean-cutting buckets with 15" to 24" cutting widths, and 6' to 8' depth. You can undercut cross mains, walks and driveways. You'll like its ease of operation, its automotive controls.

THE 312

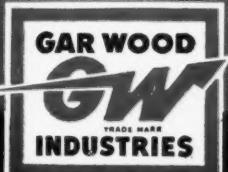
The Buckeye 312 is the "last word" for your cross-country job. Ideal for long water and gas mains, sanitary district work, and pipelines. Digs a ditch 16" to 30" wide, and up to 6' deep. Diesel powered . . . hydraulic coupled transmission. Renewable easy-change rooter bits. Light, strong tubular welded steel frame. You'll recognize 55 years of leadership in the new complete line of Buckeye Ditchers.

OTHERS

For wide, deep cuts select the Model 120. Boom shiftable to left or right. Digs ditch 16" to 48" wide, 11' 0" deep. Model 160 digs ditch 18" to 48" wide, 12' 0" deep—18' optional.



New Speedy-Change Rooter Bits
Now Available for Buckeye Ditchers



MAIL NOW
FINDLAY DIVISION, FINDLAY, OHIO
Buckeye

Ditchers • Shovels • Spreaders • Finegraders

GAR WOOD INDUSTRIES, INC.
Findlay Division, Findlay, Ohio.

Please send me the new bulletin on:

<input type="checkbox"/> PONY DITCHER	<input type="checkbox"/> 406 DITCHER
<input type="checkbox"/> 312 DITCHER	<input type="checkbox"/> 120 DITCHER
<input type="checkbox"/> 160 DITCHER	

Name.....

Company.....

Address.....

THE INSIDE STORY OF OUTSTANDING PERFORMANCE

Years of Planning,
Testing, Proving
and Training
Behind A-C
Equipment

TORTURE TESTED

... at Proving Grounds

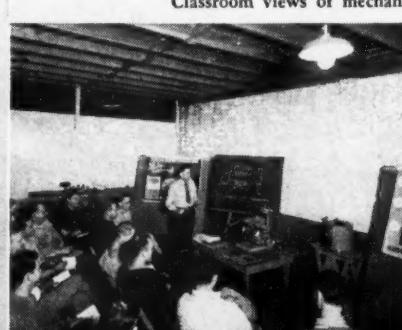
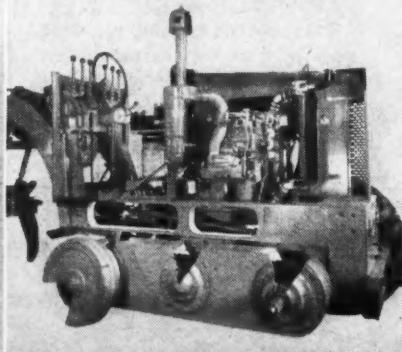
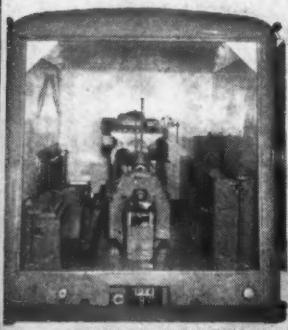
After long research and engineering, Allis-Chalmers and Allied experimental models are built and sent through the most gruelling grind on our Proving Grounds that can be conceived. They operate 24 hours a day on all types of tests . . . in mud, sand, rock and gravel. Tractors are driven at high speed over staggered railroad ties — really torture tested!

Interior view of one of
the Educational Trucks.

Cut-away of controls, engine and driving
wheels of Model A-D Motor Grader.

... in the Field

After they prove their ability on the Proving Grounds they are sent into the field. Here they are tested under a variety of conditions, on every type of job . . . the toughest in the country! The contractor's own operators put them through their paces. A-C field engineers constantly check and study their performance . . . movies are made for further observation. When they are put into production they are ready . . . ready to give outstanding performance, anywhere!



Classroom views of mechanic's school at Springfield, Ill.

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BACKED BY SKILLED SERVICE

Factory-Trained Mechanics

Schools for dealer mechanics are in constant session at our factory in Springfield, Ill. Courses combine lectures with laboratory work. Equipment is torn down and put back together. Cut-away views show assemblies in operating position and in operation.

Industrial Educational Trucks

Here is education on wheels for en-

tire dealer personnel. These trucks travel about the country — from one dealer to another — carry cut-aways of principal assemblies and tear-down engines.

Home Office Service

Highly-skilled factory servicemen are available to dealers for advice and assistance. Service Manuals and Instruction Books prepared by this department give you and the dealer detailed information on servicing and

operating Allis-Chalmers machines.

Allis-Chalmers Parts

Complete stocks of replacement parts — made in same factory, to same specifications as original parts — are carried by your A-C dealer.

Matched Line of Allied Equipment

It is designed and built in cooperation with A-C . . . undergoes same rigid tests . . . and is sold and serviced through A-C dealers.

ALLIS-CHALMERS

TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

Originator Of The Torque Converter Tractor

"Johnny-on-the-SPOT" when you've got to pour it HOT!



Mobile tank-car heater available in two and three tank car heating capacities. Oil-fired with extra high heat transfer flue-travel; dry coil steam condensate return under pressure — no water or heat losses.

Cleaver-Brooks Mobile Tank Car Heaters Give You:

- Fast Steaming — 20 minutes from cold water start to 125 lbs. steam pressure.
- High heat transfer — low fuel consumption — minimum water losses.
- Year-round application. Besides tank-car heating, it can be effectively used for steam cleaning, catch basin thawing, culvert thawing, etc.
- Trailer or truck mounting for quick job-to-job transport.

**Get the Steam you Need
for Fast Tank-Car Heating...
USE LESS FUEL, LESS WATER
AND LESS WORK**

THE tank car on the siding is the starting point for fast work on any project requiring the heating and handling of bituminous materials. The quicker the material is heated to application temperature and flowing into the distributors — the faster your road crews can get going.

But that's not all — the Cleaver-Brooks tank car heater is an all-purpose unit when it comes to providing a source for steam and heat for thawing, cleaning and other heating requirements.

It's so readily portable, that it can go anywhere you can take a car or truck. This feature alone makes it one of the handiest tools for a wide range of construction operations. For more information write for bulletin.

CLEAVER-BROOKS COMPANY
387 E. KEEF AVENUE • MILWAUKEE 9, WISCONSIN

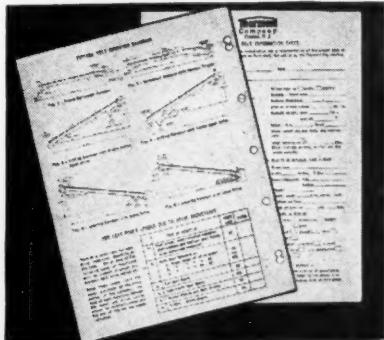
Cleaver-Brooks

TANK CAR HEATERS... BITUMINOUS BOOSTERS... AUTOMATIC STEAM PLANTS

PIONEERS AND
ORIGINATORS OF

Thermoid

Conveyor and Elevator Belting



There are several standard types of Thermoid Conveyor and Elevator Belting with different thickness and cover characteristics to suit the materials to be handled, angle of incline, speed of belt and other wear factors. Special constructions are available to meet extreme requirements. To check your needs accurately, fill out a Thermoid Conveyor (or Elevator) Belt information sheet, available upon request. The data you furnish will enable us to recommend the most satisfactory and economical belt for your job.

For Severe Service...

Thermoid "HT" Type—Built to carry highly abrasive materials under severe conditions. Supplied with 48 oz., 42 oz. or 35 oz. hard duck, 32 oz. or 28 oz. fabrics. Skim coat between plies. Average friction 20 to 24 lbs.; average tensile strength of covers 3500 to 4000 lbs. In widths, number of plies and cover thicknesses as specified. Maximum width 60"; approximate roll length 525 ft.

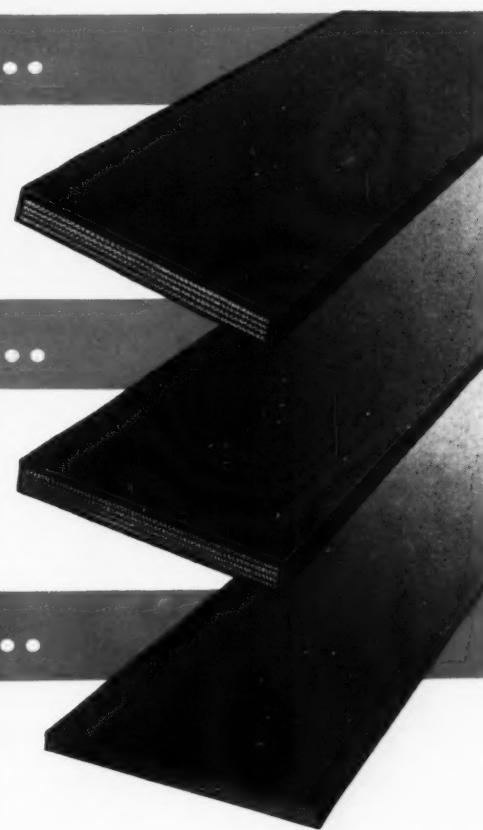
For Regular Service...

Thermoid "A" Type—Is built to carry moderately abrasive materials in regular service. Furnished with 42 oz., 35 oz. hard fabric, 32 oz. or 28 oz. fabric. Skim coat between plies; average friction 16 to 19 lbs.; average tensile strength of covers 2500 to 3000 lbs. In widths, number of plies and cover thicknesses as specified. Maximum width 60"; approximate roll length 525 ft.

For Light Service....

Thermoid "C" Type—Is made to carry non-abrasive materials under light service conditions. Furnished with 28 oz. or 32 oz. fabric. Average friction 12 to 15 lbs.; average cover tensile 800 to 1000 lbs. Number of plies and cover thicknesses are optional. Maximum width 60"; approximate roll length 525 ft.

Other Thermoid Conveyor Belts made to meet special conditions: Neoprene, for use where oil and grease are present; "Ruff Top", for packaged goods; "HH", for high temperatures; and Canners, for fruits and vegetables—Information upon request.



The Thermoid line includes: Transmission Belting • F.H.P. and Multiple V-Belts • Conveyor Belting • Elevator Belting • Wrapped and Molded Hose • Custom Molded Products • Industrial Brake Linings and Friction Materials.



Main Offices and Factory • Trenton, N. J., U. S. A.

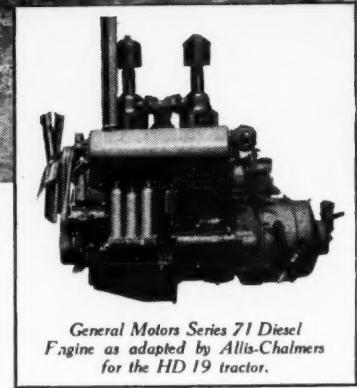
Western Offices and Factory • Nephi, Utah, U. S. A.

Automotive and Industrial Rubber Products • Friction Material • Oil Field Products

1500 yards an hour...



New Euclid VB loader pulled by Allis-Chalmers HD 19 tractor. Equipment owned by Terry & Steadman, Contractors, Bay City, Michigan.



General Motors Series 71 Diesel Engine as adapted by Allis-Chalmers for the HD 19 tractor.

24 hours a day

WHEN this Euclid VB loader and Allis-Chalmers HD 19 tractor went to work on the Louisville, Kentucky levee project, the dirt really began to fly—1500 cubic yards an hour, 24 hours a day.

"Almost double the amount other types of equipment move," the superintendent tells us. And no wonder! For the HD 19 boasts a wealth of smooth, dependable General Motors Diesel power.

Because the GM Diesel engine operates on the 2-cycle principle, it provides power at every

downstroke. So the "six" performs like a "twelve"—turning out more work and sticking to it longer.

Whatever your need for power may be, it will pay you well to standardize on General Motors Series 71 Diesels. Not only are they frugal with fuel, but these engines are long-lived, durable workers that are easy to maintain. And you get an added bonus of parts interchangeability between engines of different sizes. See your local dealer, or write directly for further details.

DETROIT DIESEL ENGINE DIVISION

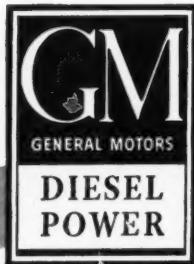
SINGLE ENGINES . . Up to 200 H.P.

DETROIT 28, MICHIGAN

MULTIPLE UNITS . . Up to 800 H.P.

GENERAL MOTORS

DIESEL BRAWN WITHOUT THE BULK



Now Available

FREE

NEW

LINK-BELT SPEEDER

TRUCK-MOUNTED
SHOVEL-CRANES



HC-70

HC-70 TRUCK-MOUNTED SHOVEL-CRANE DATA

•
On Location Photographs
Specifications - Clearances
Capacities and Working Ranges

•
Send for Book No. 2335

*Speed
and Capacity*

ARE THE KEY TO
EXTRA PROFITS
WITH THE

HC-70

Abundant power under perfect control. That's why the Link-Belt Speeder HC-70 gets more work done—faster. Rapid lifting and accurate spotting of heavy steel plates make tank erection profitable.

SAFETY-TYPE INDEPENDENT RAPID BOOM HOIST

Standard equipment on the HC-70, operating independently of other functions of the machine or simultaneously with them, the rapid boom hoist and powerful lowering power transmission give maximum speed to the added safety in rapid and pawl, controlled from when it is not being re-

Completely illustrated with on the job photographs of the Link-Belt Speeder HC-70 Truck Mounted Shovel-Crane—see how this multi-purpose Shovel-Crane is cutting costs for contractors and how they put this equipment to work on dozens of different jobs. The new bulletin is loaded with interesting information for you.

See your local Link-Belt Speeder distributor today or write for this valuable informative catalog.

11.273

LINK-BELT SPEEDER



Builders of the Most Complete Line of
SHOVELS-CRANES-DRAGLINES

LINK-BELT SPEEDER CORPORATION,
CEDAR RAPIDS, IOWA

BUY and SPECIFY **GOODYEAR** — it pays!



More pull
per pound!

EARTH MOVER
SURE-GRIP
for maximum traction
on drive wheels

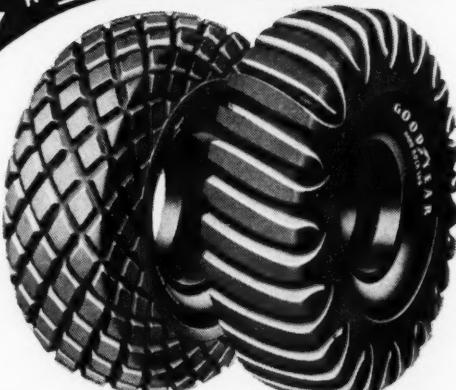
A RIGHT TIRE FOR EVERY JOB

HERE'S the "right" tire for your drive wheels if you want all the pull and traction you can get. It's the Goodyear Earth Mover Sure-Grip — the job-proved husky that delivers *more* traction. Just look at that o-p-e-n c-e-n-t-e-r self-cleaning tread with its massive lug bars. Each one a separate traction cleat that takes a firm grip with

minimum slip, pulls sure and steady in tough going.

There's the reason why the Earth Mover Sure-Grip is *first choice* wherever super pulling power counts! Couple this with low-cost and long-life performance and you'll know why year after year, *more yards are moved on Goodyear off-the-road tires than on any other kind.*

Sure-Grip, All-Weather—T. M.'s The Goodyear Tire & Rubber Company



EARTH MOVER
ALL-WEATHER
for drawn vehicles
and general traction

HARD ROCK LUG
for super-stamina
in all rock work

GOOD  **YEAR**

MORE YARDS ARE MOVED ON GOODYEAR OFF-THE-ROAD TIRES THAN ON ANY OTHER KIND



Construction Methods

Volume 30

OCTOBER, 1948

Number 10

CUTS AND FILLS

LABOR PROBLEMS and elimination of the basing point pricing system in steel and cement were leading topics at the A.G.C. mid-year meeting in Chicago last month. Contractors, really disturbed over the steel and cement situation, were calmed down a little by William Simon's talk outlining studies now being made by the Capehart Committee to determine the effects of the court's decision on marketing practices on the national economy, on industries and on companies.

SIMON, counsel for the Committee, stated most complaints received to date are from small-town dealers who are placed in an unfair competitive position because they represent distant mills, and now must pay more for the materials.

BY NOW he probably regards contractors as chief complainants after listening to comments from the meeting floor. One hard-boiled contractor wanted to know why the *!!?** wasn't such a study made prior to prosecution of the case by the Federal Trade Commission.

WALTER COUSE, building contractor from Detroit and A.G.C. nominee for vice-president next year, represents construction on the Capehart Committee advisory panel. The industry's interests will be well protected by this able young builder.

A.G.C. PRESIDENT DWIGHT WIN-KELMAN wisely suggests that construction apprentices be deferred by draft boards until their training period is ended. He believes the 130,000 current apprentices should receive the same consideration as college students, who are to be deferred until they finish their present term.

MANY APPRENTICES will receive some military training under the reserve military construction unit plan now being carried out by the A.G.C. and the Corps of Engineers. The con-

tractors are proud of the fact they already have 84 out of the promised 100 units organized in less than a year from the time military authorities announced the plan.

BIGGEST CONCERN of contractors about labor at the moment is disposition by the Supreme Court of the petition to review the "overtime on overtime" decision of last June 7. Based on a longshoremen's case, the court ruled customary extra pay for Saturdays, Sundays and holidays is not overtime, but is a premium for working undesirable hours. Thus, overtime must be paid in addition if the worker has already put in 40 hr. or more that week.

MEANWHILE, the wage and hour administrator has announced postponement of enforcement of the decision, originally scheduled to start Sept. 14, until the court, which convened Oct. 4, announces its action on the petition to review.

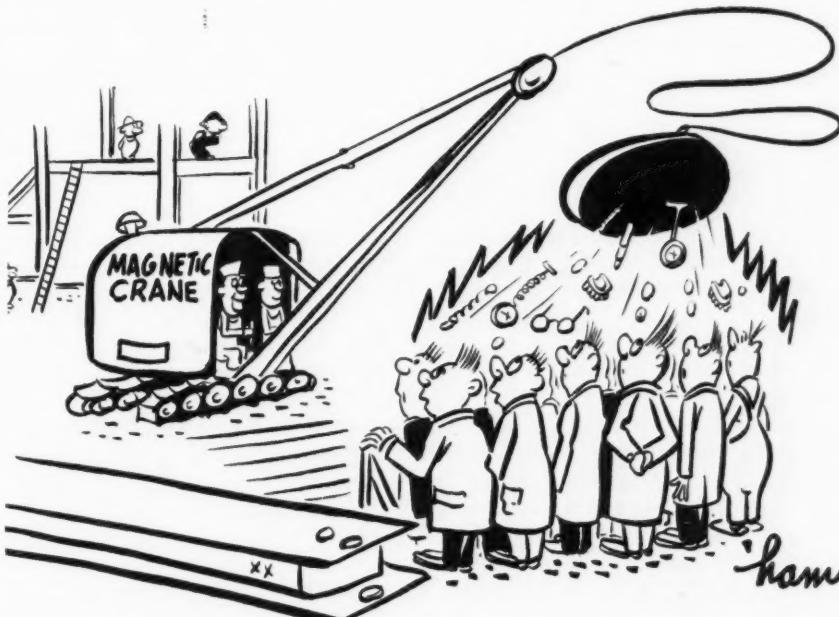
CONTRACTORS are warned, however, that postponement of enforcement does not protect them from violation suits arising since June 7.

THE JOINT labor-contractor plan for settlement of jurisdictional disputes seems to be working well—so far. Out of 48 cases presented, 11 have been settled. The big one, that involving carpenters' claims to handling all lumber, including unloading, carrying, and form stripping, has been sidetracked for a while.

THIS is a tough case, for actually many contractors prefer to strip forms with carpenters, yet they are unwilling to pay skilled rates for unloading and carrying.

THE REAL TEST of the jurisdictional plan will come when some union rebels at a decision. Such rebellions have wrecked every jurisdictional settlement plan in the past, but contractors hope this setup is strong enough to hold the line.

THE OUTLOOK is not too bright, however, because of internal bickering and jockeying for power within the A.F.ofL Building Trades Department. Contractors and the public will suffer if the present cold war breaks out into open warfare, for jurisdiction is the battleground for such a fight.





New power plant site at Sault Ste. Marie, Mich., inclosed by . . .

Rock-Fill Cofferdam in Soo Rapids

INGENUITY by virtue of necessity is the rule rather than the exception on most large cofferdams constructed in deep or swift waters. But cofferdamming some 16 acres of the turbulent rapids in the St. Marys Falls River as the initial step in building an 18,500-kva. hydroelectric power plant at Sault Ste. Marie, Mich. reached a high degree of contractor fortitude in whipping an incredibly difficult job. Moreover, work schedules maintained for the cofferdam construction and powerhouse excavation call for this million-dollar contract to be completed from six to nine months ahead of contract completion date.

The United Construction Co., Winona, Minn. has the general contract for this part of the job, with all work being performed by its subsidiary company, the Soo Constructors, Inc., of Sault Ste. Marie, Mich. V. R. Wood is project manager; W. G. (Bill) Buehler, general superintendent; A. J. Ross, night superintendent, and H. M. Wolpers, civil engineer.

In retrospect, the completed cofferdam today looks like it might have been a simple job. Starting at a junction with the offshore

headrace dike of the existing power plant, 1,000 ft. of heavy rockfill cofferdam extends downstream along the north, or offshore line of the 16-acre site. This embankment remains as part of the permanent headrace.

The next 500 ft. of rock-fill cofferdam has a single steel sheetpiling core and finally, 63 cells of sheetpiling cellular cofferdam inclose the three sides of the downstream 500 ft. of the site, tying into the existing offshore tailrace like Total length of the cellular cofferdam is 1,380 ft. Both the corewall and cellular cofferdam will be removed.

Since the site of the new power plant is entirely in the rapids and separated from the Sabin Lock by the tailrace of the existing power plant, there is no access to it by land. One of the first moves was to throw a pontoon footbridge across the old tailrace. All construction equipment, materials and fuel oil must be brought in by barge up the tailrace to construction headquarters established on top of the dike.

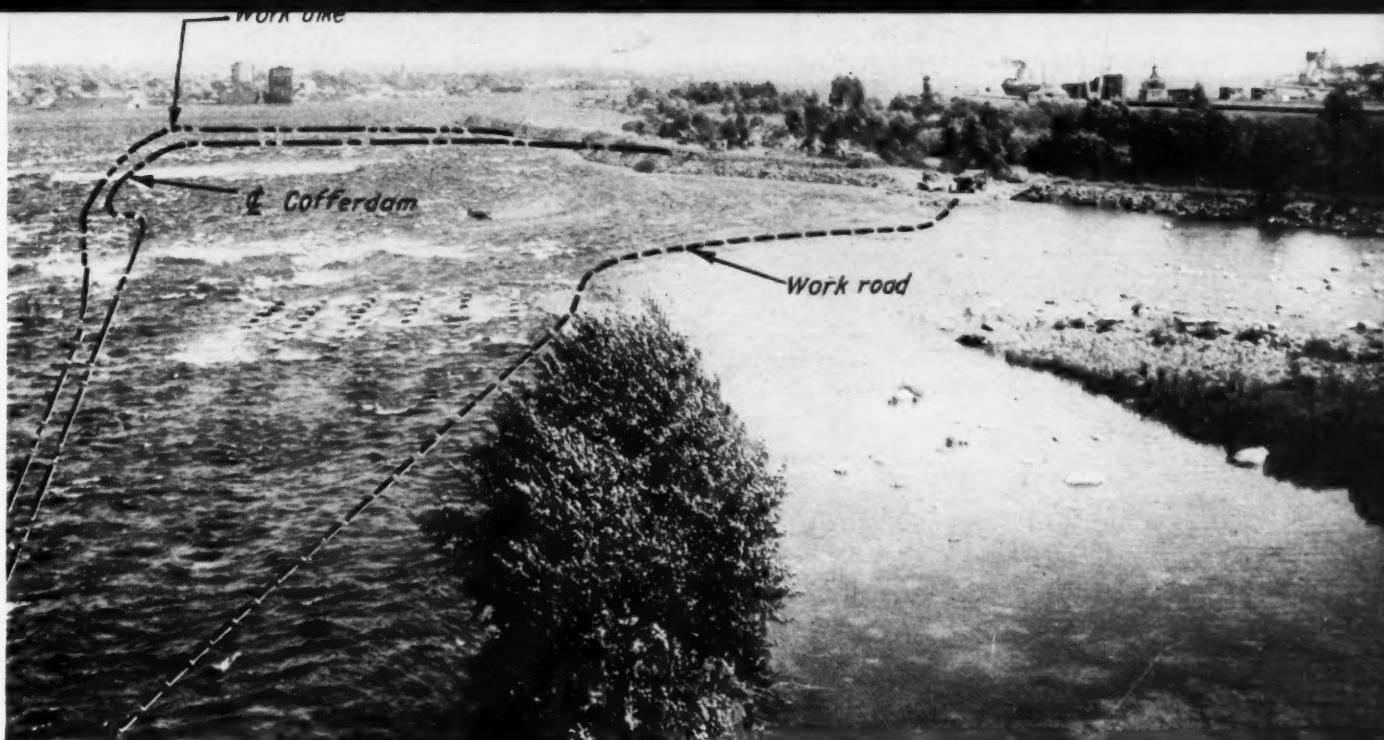
The contractor's plan of attack in cofferdamming the site was dar-

ing in concept but incredibly simple in execution once it was put into operation.

Four steel barges and a 100-hp. tugboat were brought up from the Mississippi river to form the spearhead of the attack on the rapids. Working from one of the barges a 2½-yd. Lima 801 dragline leveled off a small area on top of the old tailrace dike to set up the construction headquarters and to land a 1½-yd. Koehring 605 shovel, three 10-yd. Euclid end-dump trucks and two International TD-18 bulldozers.

Subsequently this initial wave of equipment was reinforced with a second 1½-yd. Koehring 605 shovel, a 1½-yd. Koehring 601 dragline, two portable and two stationary compressors having a total capacity of 1,520 cfm., four Ingersoll-Rand wagon drills with model X-71 hammers, a McKiernan-Terry No. 7 piledriving air hammer, two portable Koehler light plants, and miscellaneous small tools required on the usual large cofferdam construction and rock excavation.

Following the establishment of his beachhead on the old tailrace



TOE-HOLD is secured by establishing beach head with barge-borne equipment on old tailrace dike (upper right) to start building work road out into the rapids. This is view downstream looking into powerhouse site, with Sabin Locks at extreme upper right.

Corps of Engineers Photo

dike, the contractor projected a temporary work road angling upstream away from the dike and about 600 ft. out into the rapids to a point just outside of the north line of cofferdam.

The water was shallow, but the current was swift. Consequently, a considerable amount of rock fill—borrowed from the old dike—was lost, but eventually the work road was completed. The road was

carried just high enough above water level to permit operation of the bulldozers and trucks. In fact, it lay partly above and partly below water.

Next, the contractor started building a 30-ft. wide protective work dike about 8 ft. above water just outside of the cofferdam area. It tied into the end of the work road and extended downstream, turning back across the lower end

of the site to tie into the old tailrace dike.

Even more material was lost in building the work dike than when the work road was laid down since operations were farther out in the rapids where the current was swifter and the water deeper. During most of this time all 16 compensating gates above the rapids were open. At one point, however, the going got so tough that all but

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WORK ROAD forms temporary downstream dike for draining and exposing borrow-pit supplying material for work dike (extreme upper right) that will inclose, lower end of powerhouse site. Draglines load riverbed debris for haul to work dike in Euclid end-dump trucks.

Corps of Engineers Photo





FOLLOWING ALONG with building of work dike (upper left) core of offshore arm of permanent cofferdam (left) is extended downstream from work road, shown here at right. Note how drop

in rapids drains main bed where flow is cut off upstream. Concrete pedestals in center are barrage balloon anchors installed during war.

Corps of Engineers Photo

three gates were closed for nine days. During this period the contractor built 700 ft. of dike.

In one respect the steep gradient of the falls benefited the contractor. It was so steep that as soon as a short length of work dike had been completed the area inside of it became unwatered, permitting power shovels and trucks to work directly on the exposed bed of the rapids.

Construction was started in

August, 1947, and by the time work closed down for the winter last December the rock-fill cofferdam and the corewall section were completed. Also, sheetpiling for all 63 cells had been driven but the cells were not filled. Some 1,600 tons of steel sheetpiling was driven in six weeks.

Last May the cells were filled with a clay seal and rock excavation, the area was pumped down, and dewatered with three 1,500

gpm. electric pumps, and excavation started for the powerhouse.

In placing the cells the overburden was removed by dragline and clamshell and the sheetpiling lowered on to bedrock, held in place by a four-spud template with each leg adjustable to compensate for irregularities in the bedrock. A few blows of the air hammer seated the piling and anchored them until they were ballasted.

Certain areas of the powerhouse

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FULL WRATH of foaming rapids is met near lower end of work dike where trucks and bulldozers finally won nip-and-tuck battle with roaring river.

Corps of Engineers Photo





BATTLE with swift waters is now won, and contractor strengthens his position by building cellular cofferdam across lower end of site (far background) inside work dike. Rock fill embankment at left is part of permanent headrace dike; corewall and cellular cof-

ferdam will be removed upon completion of powerhouse. In this view work road has been removed and incorporated in cofferdam. Three 1,500-gpm. electric pumps dewatered powerhouse site.

Corps of Engineers Photo

excavation must be excavated to neat lines with no toleration. This requires drilling and broaching or, in some cases, close drilling (2½-in. holes at 4½-in. centers) and light shooting.

Heavy shooting is not permitted due to the close proximity of Sabin Lock about 500 ft. to the south of the site. Holes are drilled on 5-ft.

centers, each way, and loaded with about 1 lb. of 40- or 60-percent Atlas dynamite per cu. yd. of rock produced.

Holes are wired in parallel series and fired with millisecond caps, in waves of four rows at a time. As a safety precaution, each charge is fired by a 220-v. detonator mounted on top of the maintenance shop.

From this vantage point the blasting foreman, G. McIntyre, commands an unobstructed view of the entire site. In addition, several sharp blasts from a siren warn the men when a blast is to be set off, and one long blast signals the "all clear."

The contractor has a peak total employment of 65 men, working

FOUR-SPUD TEMPLATE insures fast and accurate placing of sheetpiling for cellular cofferdam. Each speed is adjustable for 4-point bearing on irregular bed of rapids.

Corps of Engineers Photo

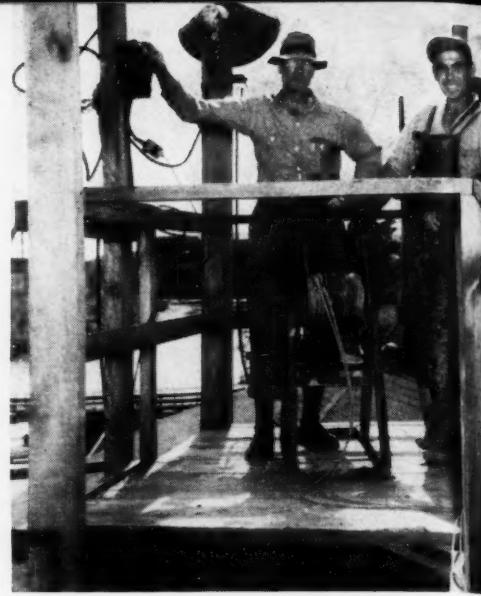
WHERE EXCAVATION TOLERANCE is limited, Ingersoll-Rand wagon drills sink 2½-in. holes 4½ in. c.toc. for channeling the rock to neat lines. Network of air lines from four compressors to drill rigs include 2,500 ft. of 4-in. high-pressure steel "invasion tubing" with Victaulic couplings and 1,500 ft. of ¾-in. to 2-in. flexible hose.

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BLASTING in open areas averages 1 yd. rock per lb. powder. Biggest charge to date is 1,200 lb. of 60-percent dynamite in 320 holes. Shots are wired in parallel series, fired with millisecond caps in waves of four rows at a time.



SAFETY IN BLASTING is assured by mounting firing switch on platform atop contractor's maintenance shop, from where blasting foreman commands unobstructed view of entire site. Power for firing and for floodlights is tapped off 220-v. commercial line.



ROCKY GOING in the hole, as Koehring 1½-yd. shovel and three Euclid 10-yd. trucks carry brunt of heavy excavation, moving 1,000 cu.yd. of this tough material to nearby spoil area every 8-hr. shift.

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RUNNING JOB for contractors are (at left): A. J. ROSS, night superintendent; BILL BUEHLER, general superintendent; and H. M. WOLPERS, civil engineer. For the Corps of Engineers are (at right): R. R. RICKS, project engineer; and FRANK MONKMAN, office manager.



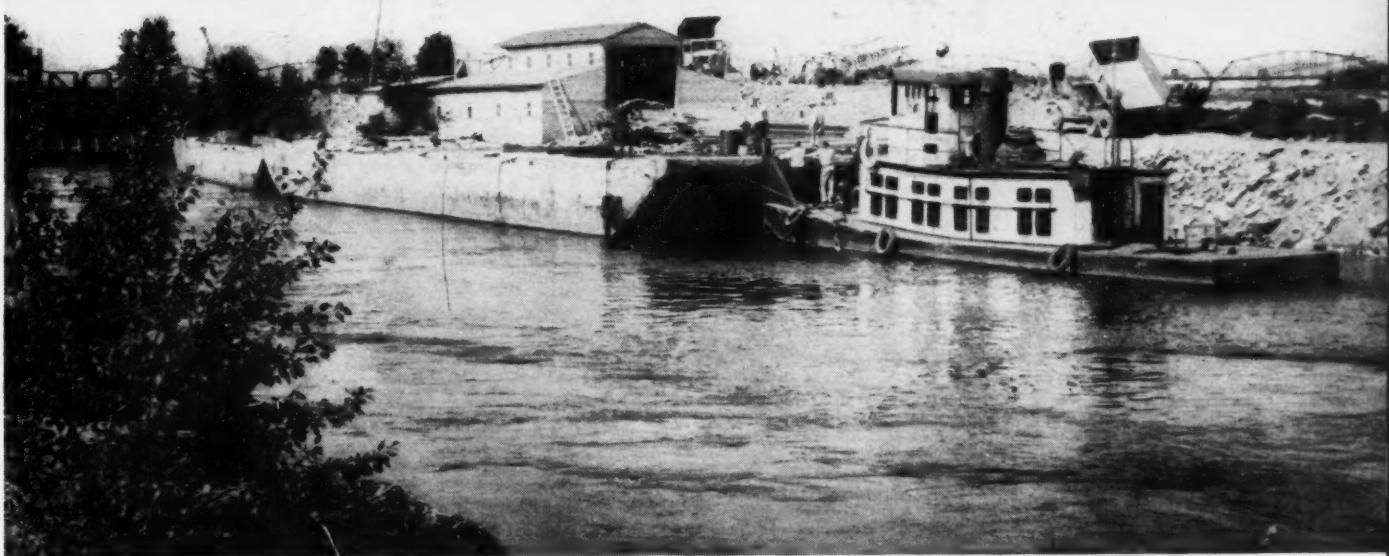
two shifts a day, six days per week. Maximum length of haul is 1 mi. to a large spoil area established upstream. This spoil area blankets the outer face of the heavy rock-fill section of cofferdam and extends on upstream a short distance past the International Railroad bridge.

Engineers in Charge

The entire project is being built by the Corps of Engineers under the supervision of Col. A. Riani, district engineer, Detroit District.

TABLE OF MAJOR EXCAVATION AND COFFERDAM QUANTITIES

ITEM	QUANTITY	UNIT CONTRACT PRICE
Cofferdam:		
Rock fill	29,500 c.y.	\$0.10
Common fill	22,000 c.y.	0.10
Clay seal	18,700 c.y.	1.00
Placing clay seal	18,700 c.y.	0.90
Steel Sheetpiling (furnishing)	2,519,000 lb.	0.08
Placing Steel Sheetpiling	3,268,000 lb.	0.04
Installation of Pumps		18,700.
Unwatering and Maintenance Pumping	800,000 M-gal.	0.08
Common excavation	148,800 c.y.	1.30
Rock excavation	47,000 c.y.	8.50
Channeling Rock	2,600 sq. yd.	20.00
Core Drilling	2,200 lin. ft.	5.00
Pressure Grouting	800 c.f.	3.50
Pressure Testing	38 hr.	15.00
Dumped Rock Fill	41,000 c.y.	0.10
Washing Rock Fill	41,000 c.y.	0.20
Unloading Steel Sheetpiling	458 tons	4.50



WORK HORSE of marine fleet is 100-hp. tugboat "George Richwood", brought up from Mississippi River with four steel barges. All equipment and supplies, including fuel oil, must be delivered to job by barge.

Corps of Engineers Photo

Tom C. Trelfa is chief of the Detroit District's Engineering and Operations Division. C. A. Aune is engineer-in-charge at the Soo, and F. N. Ricks is project engineer. Erik Floor and Associates, Chicago, Ill., prepared the design plans and specifications for the power plant and all appurtenances.

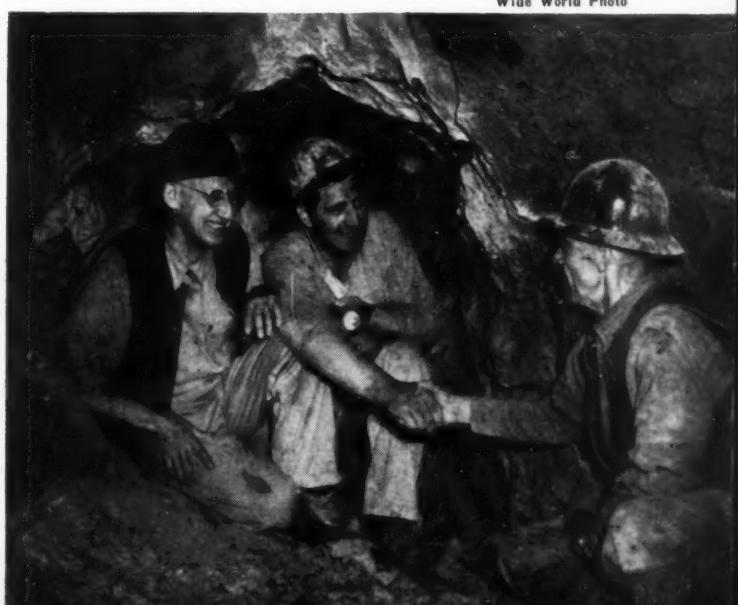
Two contracts were let in July covering the remainder of the project. Dumbar & Sullivan Dredging Co., Detroit, Mich. received a contract for excavating the raceways and constructing rock-fill dikes, on their low bid of \$916,175. For their low bid of \$3,564,700, the Tuller Construction Co., Red Bank, N. J., was awarded a contract for construction of the power plant, installation of equipment and other miscellaneous work.

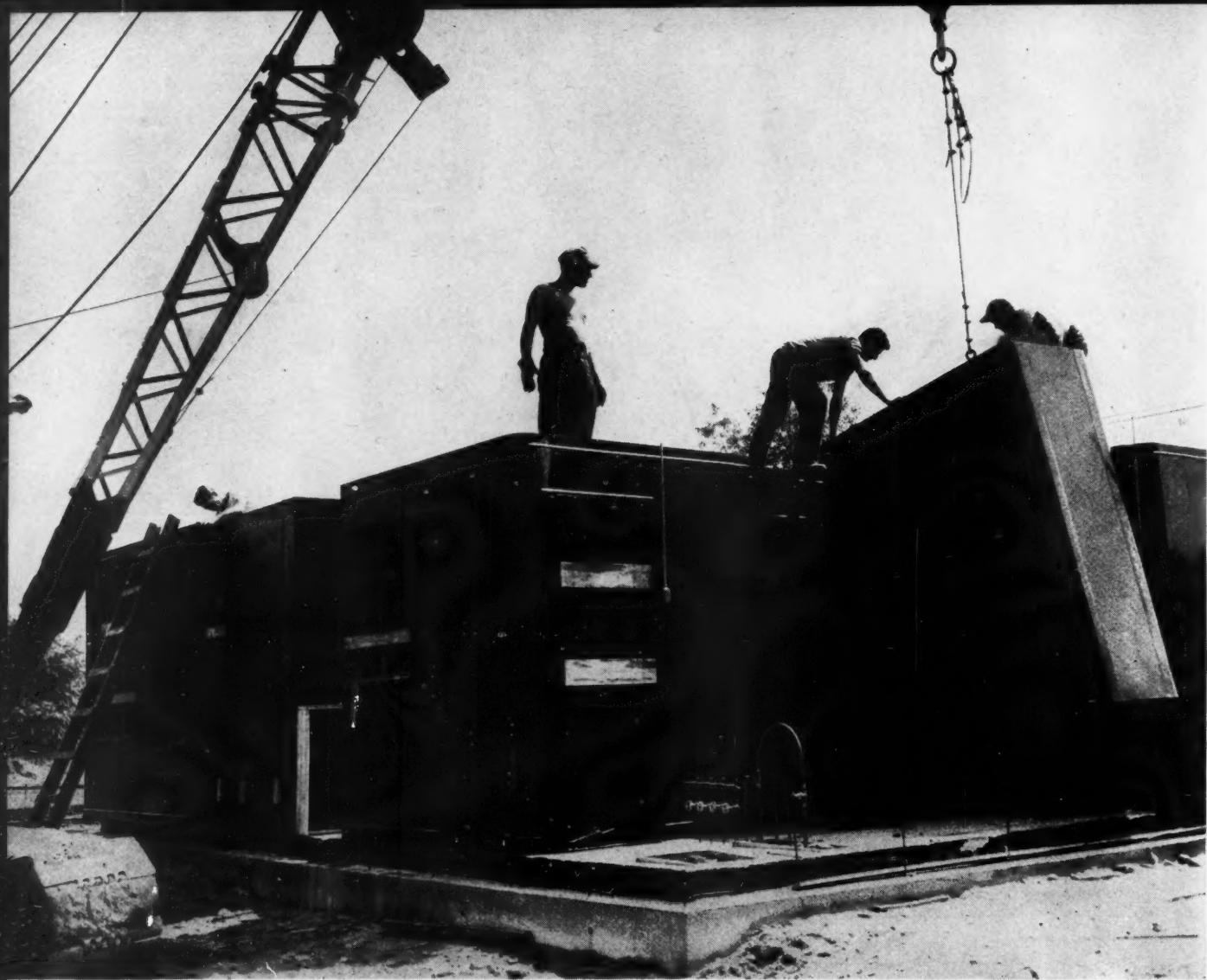


THE DEEPER the hole, the tougher the going. Here an International TD18 gives a Euclid truck a boost up a short steep grade out of excavation area.

Wide World Photo

HOLING THROUGH of Brooklyn-Battery Tunnel, New York City, is accomplished Sept. 16 as sand-hogs of George H. Flinn Corp., break through last rock barrier between headings of Brooklyn section of 31-ft. dia. twin tubes costing about \$70,000,000 which will form new vehicular route under East River and New York Harbor between south end of Manhattan Island and Hamilton Ave., Brooklyn. Tunnel 9,117 ft. between portals is built for New York's Triborough Bridge and Tunnel Authority under two principal contracts, one covering work from Brooklyn shore by George H. Flinn Corp. and the other from Manhattan by Mason & Hanger Co., Inc. Ground for the Brooklyn-Battery tunnel project was officially broken Oct. 28, 1940 by President Franklin D. Roosevelt, and work was halted in 1942 when the war caused shortages in essential materials, notably cast iron for tunnel lining.





STEEL CORE is lowered into place at Port Washington, N. Y., as interior form for stairwell of concrete house with monolithic walls and partitions. Electric boxes and conduit for embedment are attached to form face, along with door and window boxes.

Concrete Houses Cast in Box Forms

CONCRETE DOUBLE WALLS and partitions for a complete house, cast in place in a single 3-hr. pour, are Callan Builders, Inc.'s answer to the problem of reducing construction costs on their 150-house project at Port Washington, Long Island, N. Y. Walls for the five-room houses are a 7-in. sandwich of 3-in. concrete slabs with a 1-in. insulating-board filling, partitions are 3 in., and all are cast in unusual steel forms—the key to the fast mono-pour job.

Forms are few, but fancy. Patrick J. Callan, head of the build-

ing firm, designed them so that only 23 units form a complete 900-sq.ft. dwelling with attached 220-sq.ft. garage. Seven forms are panels for the exterior wall face, four make up the gables of an unfinished attic, one forms the chimney, and eleven are core forms for interior areas of the basementless houses. There is one core for each of the following: living room, dinette, kitchen, bedroom, second bedroom, bath, heater room, stairwell, hall, closet space, and garage.

All steel and all welded, the forms are 3/16-in. sheets with

1/4x6- and 1/4x8-in. bracing on 2- or 2 1/2-ft. centers both ways. Two horizontal lines of 8-in. I-beam wales, or strongbacks, are permanently attached to the units. The faces of all forms are highly polished to give a smooth concrete surface that requires only paint or wallpaper for completion.

Core forms have 8-in. radius corners and are collapsible for easy stripping. In each of the four form faces, a line of three-levered clamps across a reinforced beveled joint opens or closes the unit. Similar clamps operate steel box-

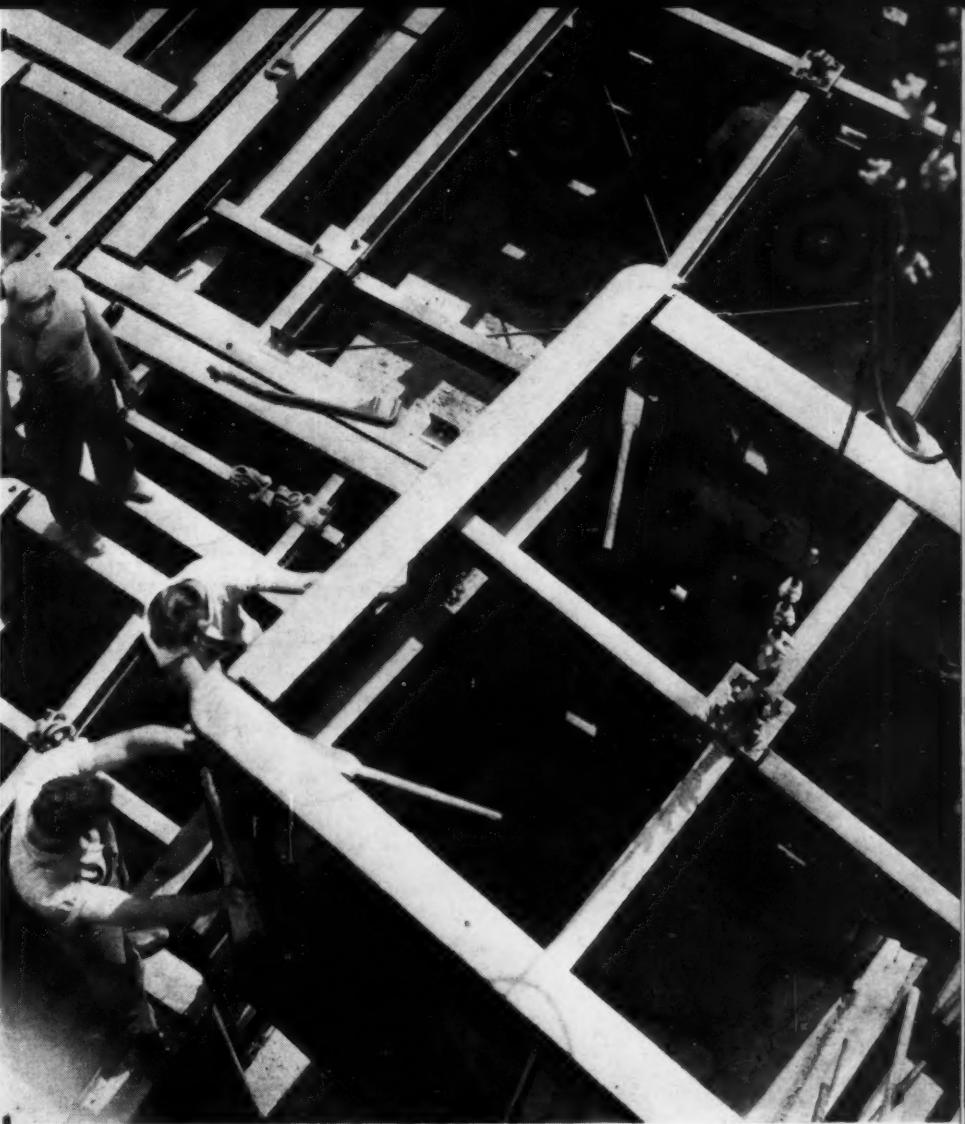
outs for windows and doors. For the exterior of the house, parallel lines of small angles, with both legs welded down to the form face, give the poured wall the appearance of beveled wood siding.

Construction Procedure

Forms are large (up to 30x8½ ft.) and heavy (up to 5 tons). They are set in place by crawler crane on an insulated and radiantly-heated 6-in. concrete floor slab that rests on a 14-in.x4-ft. continuous footing. Cores are placed first, and are held in place by tie-bolts through wales of adjacent units.

With all cores set, 6x6-in. No. 6 welded wire mesh is dropped into the 3-in. space between them to reinforce the partitions. The mesh is also placed around the exposed faces to reinforce the inner layer of the building wall. Vapor-proofed insulating board is then set up and covered with another mat of reinforcing for the outer wall face. Door and window openings are additionally reinforced with ½-in. rods. Finally, exterior form panels are erected and bolted to the cores through holes in the forms at windows and doors.

The formed house is poured in about 3 hr. with high-early-strength cement in a 1-2-3 mix with 5 gal. of water per bag. Transit-mixed concrete is lifted by crane and bucket to an elevated hopper resting atop the forms, and is run through a 3-in. rubber hose

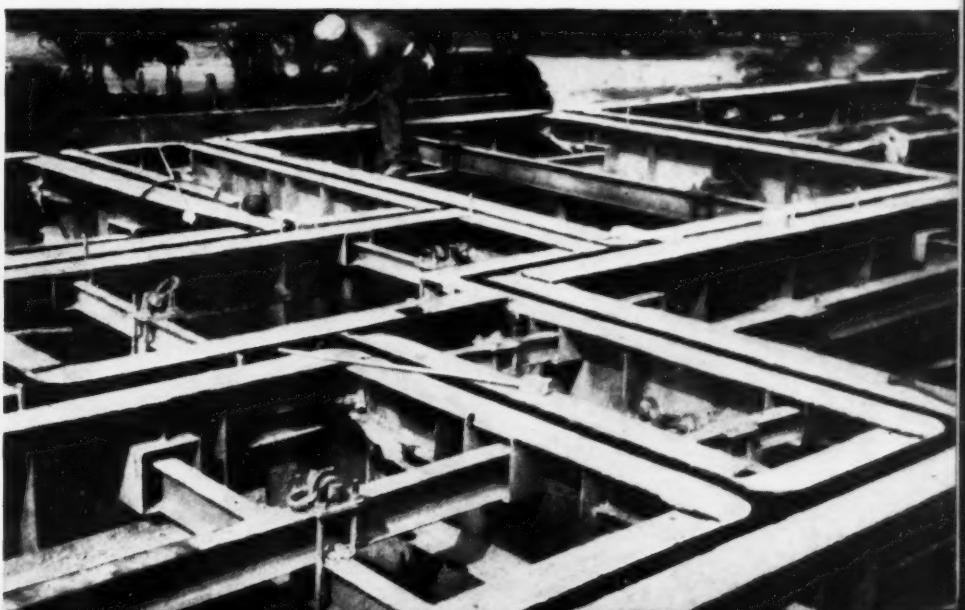


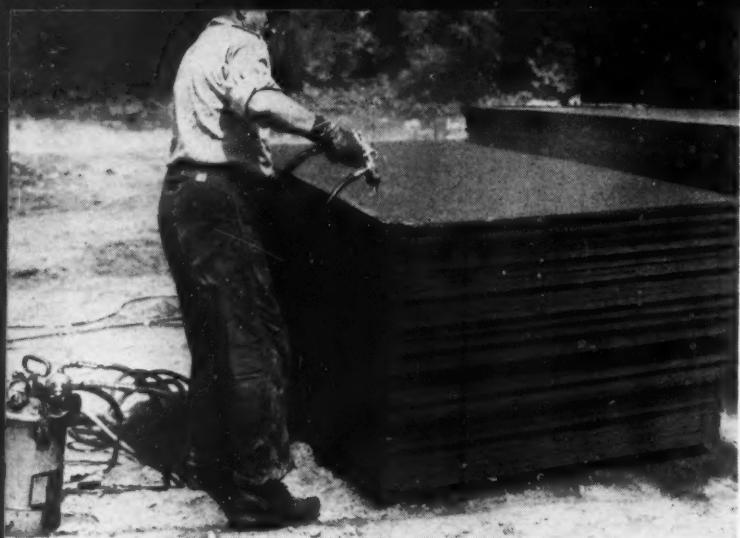
DINETTE FORM is collapsed for easier placement. Note levered clamps and opened beveled joints near well-rounded form corners. Forms were designed by Patrick J. Callan, Manhasset, N. Y., builder.

HIGHLY POLISHED FACE is thoroughly oiled to give glossy concrete surface that can take wallpaper without additional work. Small angles near top and bottom of wall and around doors and windows give effect of cast-in-place trim.

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ASSEMBLED UNITS look complicated, but only 23 pieces form whole house. Cross lifting beams rest loosely in boxes on forms so units can be collapsed for stripping.





WALL INSULATING BOARD is made vapor proof with high-pressure spray of asphalt (left), is cut to size on circular saw (right) and set in place over first layer of reinforcing mesh (below).



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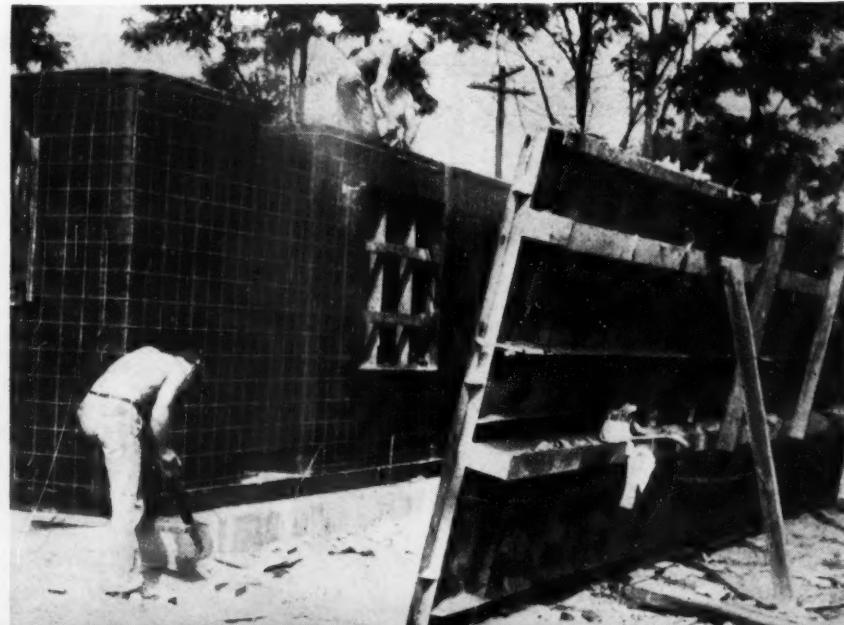
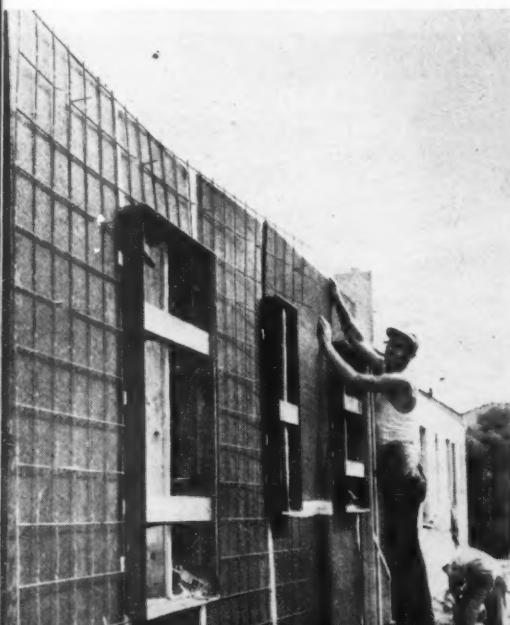
SECOND MESH LAYER is set on top of insulation in wall after joints between sheets are taped. Scattered mesh wires are cut and bent to space insulation and reinforcing.

EXTERIOR FORM stands on own feet alongside house, awaiting placement. Vertical beams are to hold gable form which will be placed when wall pour nears completion.

into the thin wall layers and partitions. As the coarse aggregate is only a $\frac{1}{4}$ -in. gravel grit, the mix flows readily through the tube. The concrete level is kept uniform in all the forms during the 3-hr. pour, special care being taken to see that the insulating board in the center of the exterior wall is not displaced. Forms are stripped the day after pouring.

At present, a concrete shell is built in two 8-hr. days, with ten men working during forming and stripping and six while pouring. It takes four men another week to complete a home for occupancy.

Henry W. Johanson, Roslyn, was architect for the houses, which are being constructed by Callan Builders, Inc., Manhasset, N. Y. Dave Suominen is superintendent for Callan.

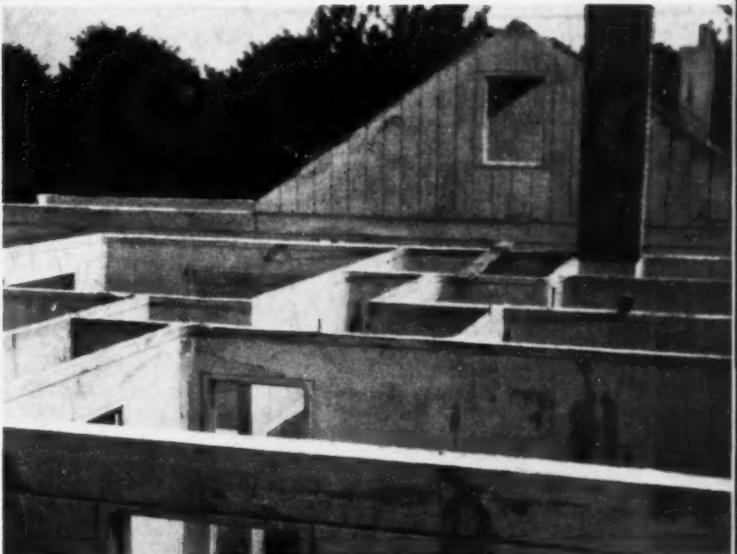




←
CRANE SWINGS
heavy wall form to
place. Small angles
on panel face give
wood siding effect
to concrete, which
will merely be paint-
ed.



→
WALL PANEL is
jockeyed into position
at edge of foot-
ing. Long galvanized
nails are driven half-
way through insula-
tion to bond it to
both sides of con-
crete sandwich wall.



POURED AND STRIPPED, walls and partitions stand ready for
decorating. This house will have hip roof; one beyond is gabled.

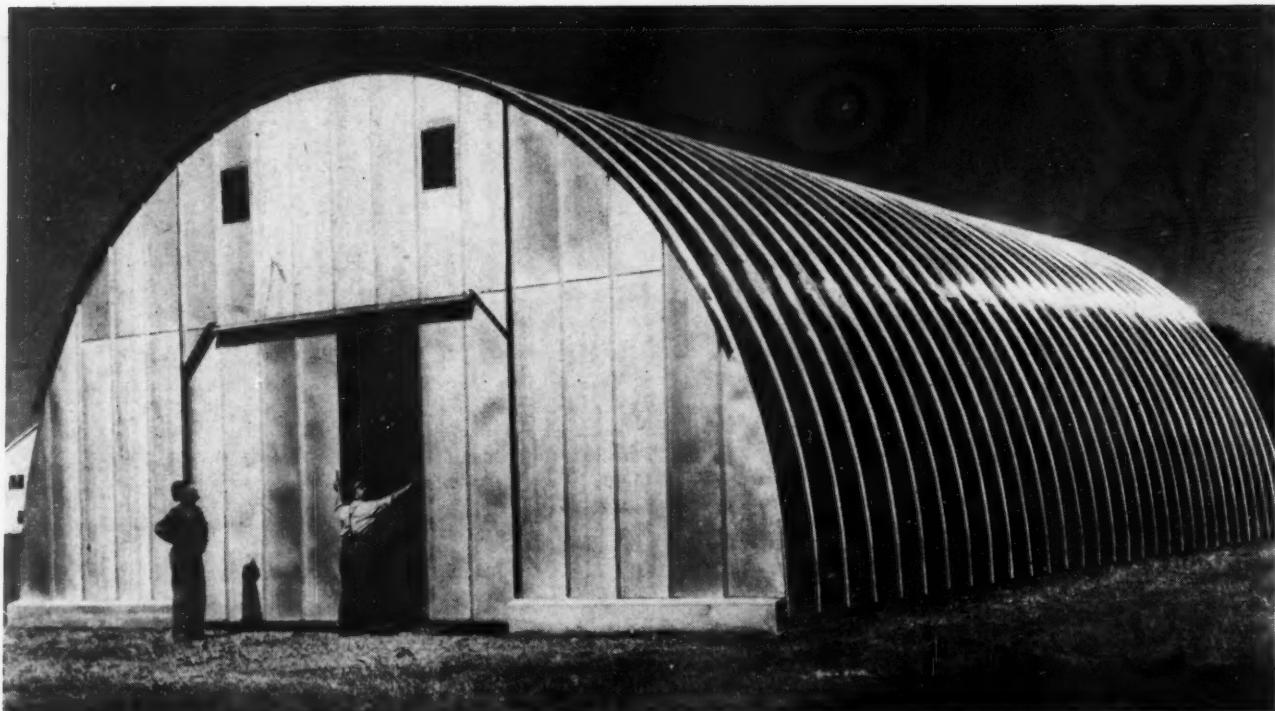
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COPPER COILS for radiant heat (below) rest on 1-in. insulating blanket over roofing felt on first 3-in. floor slab pour, will be embedded in second. Simple notched spacer gives correct 1-ft. distance between runs, which are stapled to concrete. At right is template for hand bending of copper tubing.



CONCRETE HOUSE (below) is completed by conventional meth-
ods. Only wood in structure is stairway, attic joists, rafters and
roof sheathing.





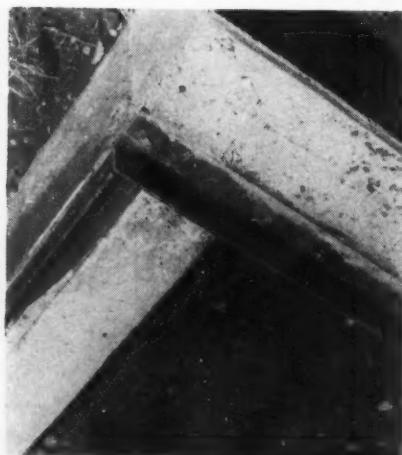
Contractors will encounter this new type of structure, but demonstration shows . . .

Erecting All-Aluminum Quonsets Is Simple

POPULARIZED during the war by military installations, the Quonset-type building is now available in various materials for commercial purposes. As they are becoming more widely used, contractors are interested in how they are erected.

One of the latest types of these structures is the Reynolds Metals Co. Alumi-Drome, an all-aluminum building put together with bolts and clamp strips. Cowin & Co., Minneapolis fabricators, recently put up a 36x60-ft. Alumi-

Drome at the Minnesota State Fair Grounds. The accompanying step-by-step pictures of this job show how simple it is to erect these buildings. Contractors will readily appreciate the short-cuts shown here.



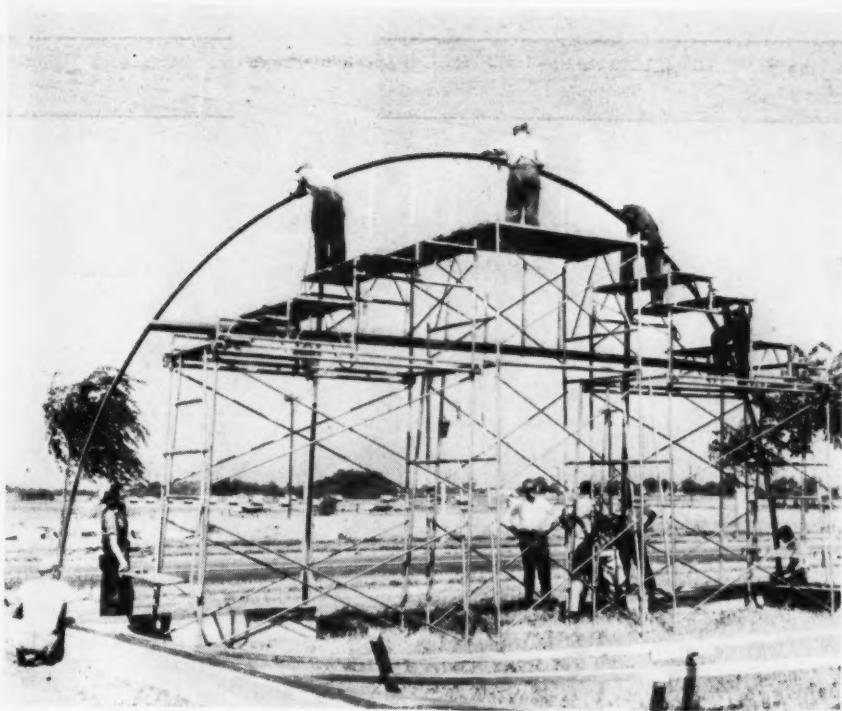
1. Start with a 12-in. foundation . . .

Base of the building is a simple aluminum angle fastened to bolts embedded in the 12-in. concrete footing.



2. Lay out the arch ribs . . .

Preparatory to setting up the aluminum ribs, they are laid out in complete units, properly spaced along the foundation walls. Ribs are 6 ft. apart.



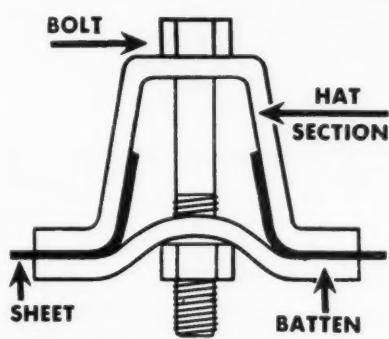
3. Raise the ribs with scaffolding . . .

Pipe scaffolds with various-height decks are ideal for erecting and temporarily holding the ribs, which are easily raised from ground level by hand.



4. Bolt purlins as stiffeners . . .

As fast as the ribs are raised, they are fastened to previously-erected ribs by aluminum purlins bolted in place by crews working off the multi-deck scaffold.



5. Hat channel holds sheets . . .

Adjacent cover sheets are fastened together with this patented channel and batten assembly, bolted every 18 in.

6. Assemble channels in advance . . .

Time is saved by inserting bolts loosely in channel and batten assemblies for end walls, leaving space for sheets to be inserted between the two parts.



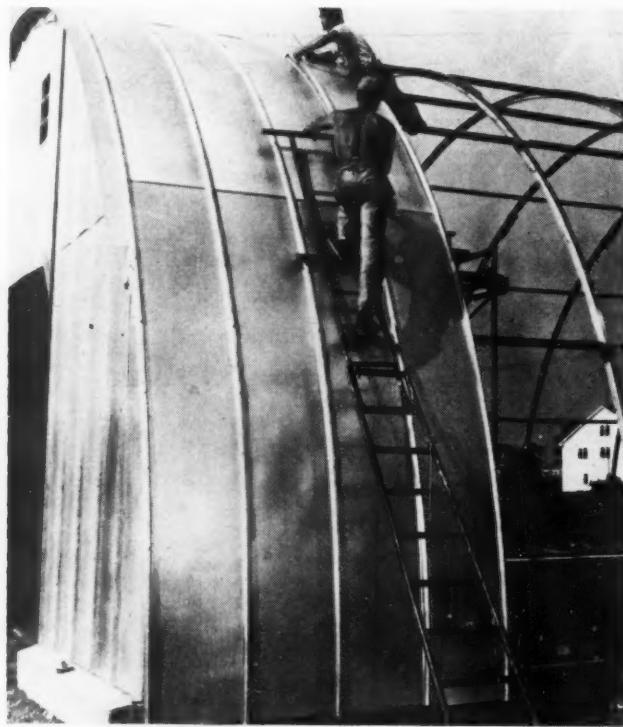
7. Slide end sheets into place . . .

Hat channel sections form vertical ribs for end siding. Crimped aluminum sheets are slid into place between channels, then bolts are tightened with brace wrench.



8. End sheets are trimmed at top . . .

After erection, end sheets are trimmed with shears to curve 6 in. above end roof rib, then are slit and notched for turning over rib with hammer.



9. Roof sheets are inserted from bottom . . .

Bottom channel assemblies are left unbolted while roof sheets are slid upwards into place from ground level. Narrow sheet at top of front end protects top corner joint.



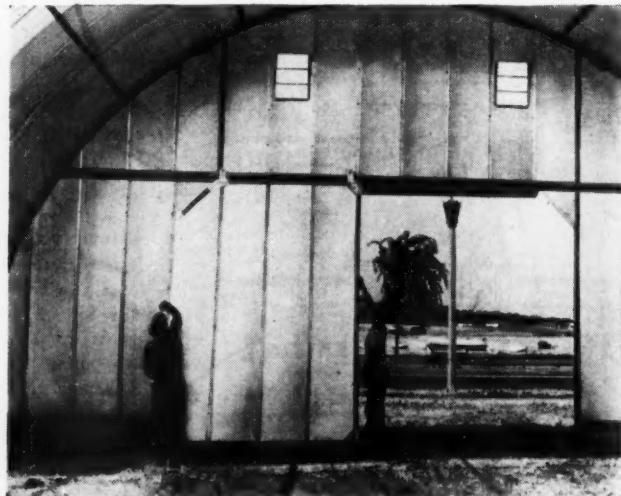
10. Inside crew assists in placing roof . . .

Hat channel sections act as intermediate roof ribs. At structural rib lines batten is omitted, top hat section bolts direct to roof framework. Roof assembly also ties in with purlins.



11. Doors are fabricated in advance . . .

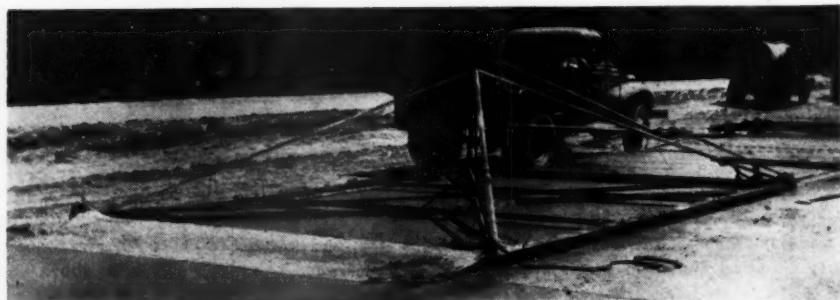
Doors consist of aluminum sheets assembled within structural frame, with standard hat-section channels acting as joints and stiffeners.



12. Hanging sliding doors is final step . . .

End doors operate on overhead track supported from end rib. Structure is now complete, ready for floor.

FOR FINISHING concrete road surfaces Rayford R. Dawson, engineer-inspector, Virginia Department of Highways, developed this rig consisting of 13x20-ft. frame dragged along pavement by truck alongside. Frame carries rubberized beltings which strike off fresh concrete to proper grade and remove excess laitance and bleeding. Burlap sacking at rear applies pavement finish.



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Lightweight

... Portables designed for quick handling to and from the job, stationary units vibrationless.

Easy to start

... Just push the built-in- electric starter, and the Compressor starts . . . to give you a continuous amount of air.

TOOLS for the JOB

Schramm Inc. also has a complete line of Pneumatic Tools to offer and recommend for operation by their Compressors.

These include Rock Drills, Paving Breakers, Trench Diggers, Clay Spades, Backfill Tampers, Tie Tampers, Sheeting Drivers, Demolition Tools, Chain and Circular Saws.

Write for bulletins and prices.

SCHRAMM INC.

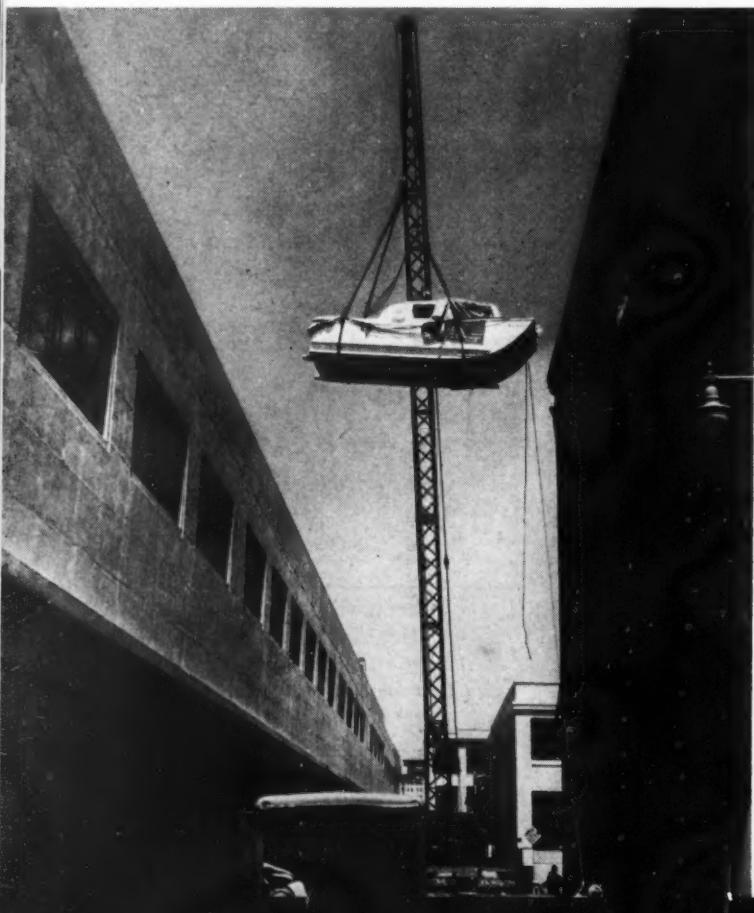
THE COMPRESSOR PEOPLE • WEST CHESTER • PENNSYLVANIA

ODDITIES



Page 50 — CONSTRUCTION METHODS — October 1948

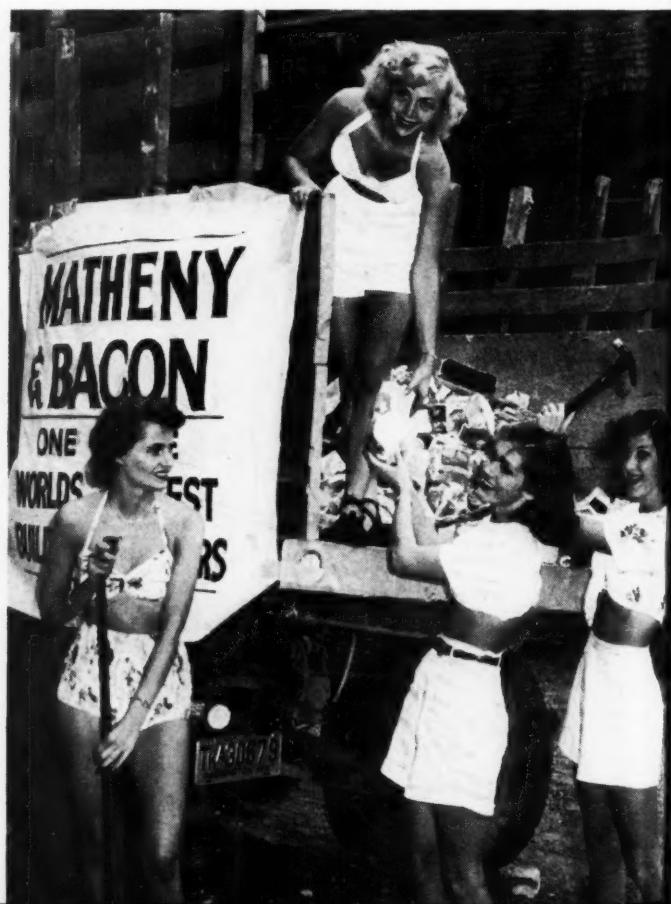
MANY A GAGSTER'S QUIP was countered by San Franciscan Paul Stanley and his wife while they were building this 20-ft. cruiser in their 4th-floor workshop. But Warren Ballinger Drayage's 20-ton Thew-Lorain crane (below) lifted 3,000-lb. boat out of window to bed of waiting truck without hitch to give Stanleys the last laugh.



MOLDED PLASTIC RELIEF MAPS, light in weight and durable, are made from flat white Vinylite sheets by Aero Service Corp., of Philadelphia, Pa. Map and contour information is first transferred to master forming model of thin aluminum sheet which is shaped to reproduce topography and from which plaster mold is made. Pre-printed (in three colors) flat Vinylite sheets are then placed over plaster molds in exact register and under heat and pressure are made to assume form of mold.

←
STEEP CLIMB is made by Four Wheel Drive Truck as new Model ZU ascends 70 per cent test slope at company's proving grounds at Clintonville, Wis., while sales and service representatives witness performance.

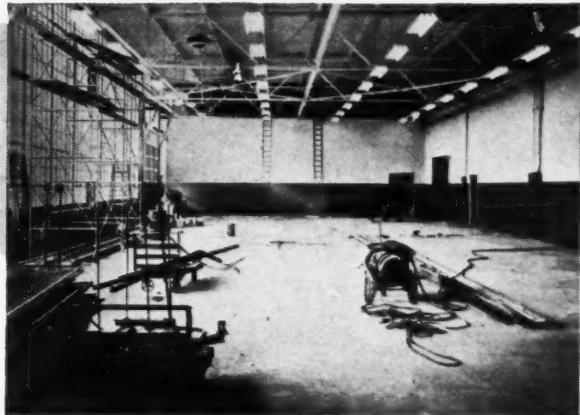
SEATTLE LABOR being scarce at the moment, Matheny & Bacon, Seattle Wreckers, hired these four beauts from a modeling agency to start demolishing four buildings to make way for city's new Public Safety Building. Sorry, boys, but the firm refuses to release production figures on this crew or even their telephone numbers. Company, which got its experience in wrecking 10,000 buildings in last 35 years, expects to salvage 5 million b. ft. of well-seasoned lumber and 5 million bricks from this job. *



DURAPLASTIC

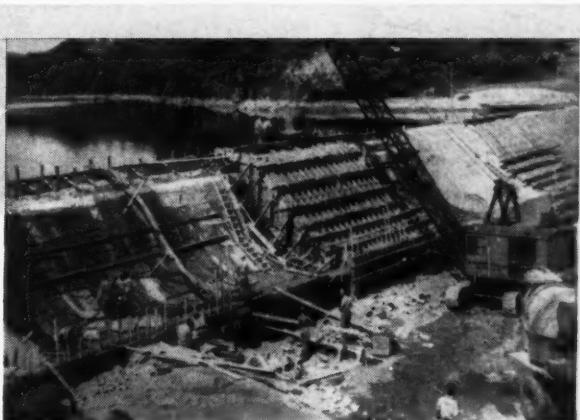
is easier to place and finish

Concrete made with Atlas Duraplastic is more plastic and workable . . . more cohesive and more uniform. Duraplastic provides the proper amount of entrained air needed for satisfactory results in structural concrete.



provides added protection under tough conditions

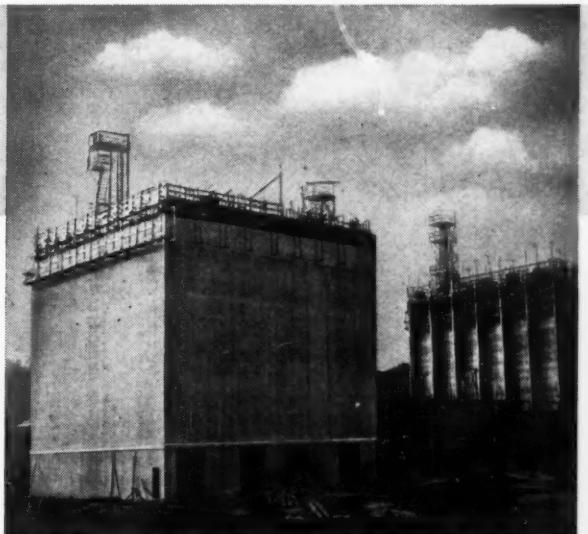
Duraplastic air-entraining cement fortifies the concrete on this dam against freezing and thawing weather . . . provides extra durability. No additional materials are needed when you use Duraplastic—just the usual supervision and careful workmanship.



and is highly adaptable for structural work

In spite of unfavorable circumstances, slip-form work on this job progressed rapidly and smoothly. Report showed: excellent-looking concrete, good workability permitted placing around heavy reinforcing with less spading.

Atlas Duraplastic cement sells at the same price as regular cement and complies with ASTM and Federal specifications. Send for further information. Write to Universal Atlas Cement Company (United States Steel Corporation Subsidiary), Chrysler Building, New York 17, N. Y.



OFFICES: Albany, Birmingham, Boston, Chicago, Cleveland, Dayton, Des Moines, Duluth, Kansas City, Minneapolis, New York, Philadelphia, Pittsburgh, St. Louis, Waco.

CM-D-72

ATLAS DURAPLASTIC

AIR-ENTRAINING PORTLAND CEMENT

MAKES BETTER CONCRETE AT NO EXTRA COST

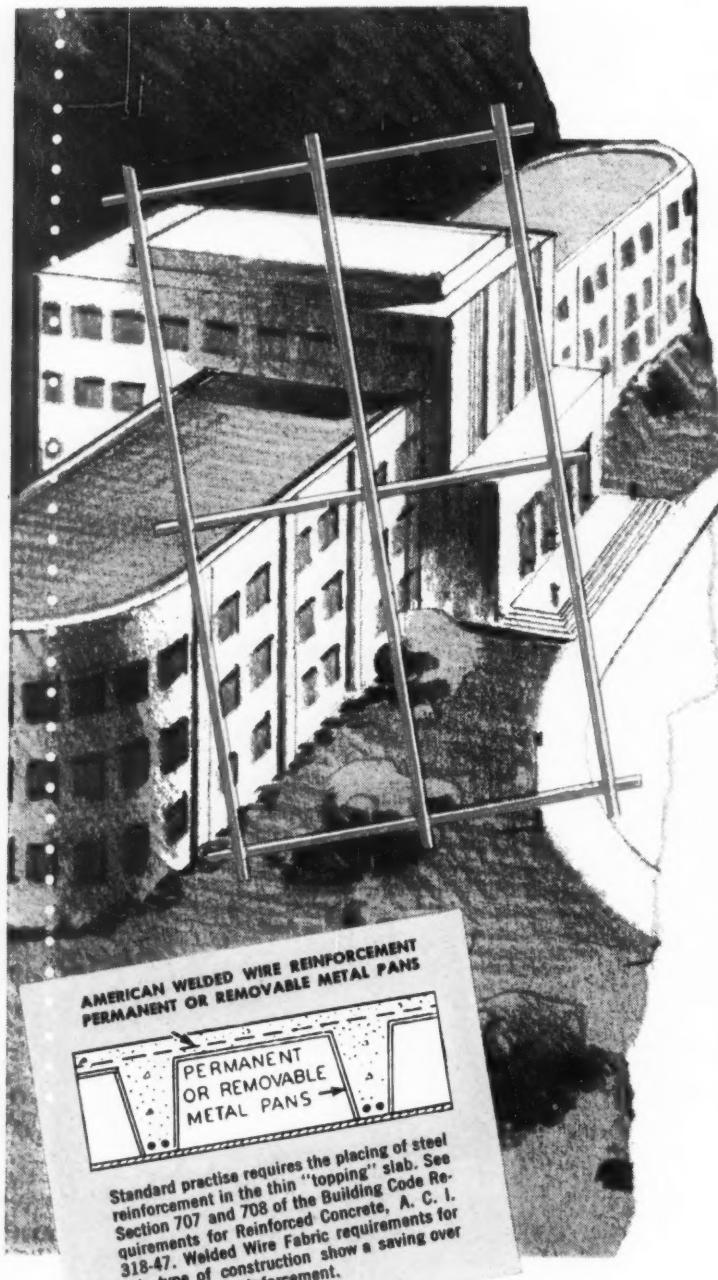
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For reinforced concrete joists

specify American Welded Wire Fabric



YOU can save material cost and construction time by reinforcing "ribbed floor" or "pan and joist" construction with American Welded Wire Fabric.

This type of construction — widely used throughout the country in office, hotel, apartment and school buildings — consists of closely spaced, comparatively shallow joists, supporting a relatively thin top slab, as shown in the accompanying sketch.

U.S.S American Welded Wire Fabric is the ideal reinforcement for this type of construction. Its many closely spaced, cold drawn, high yield-point wires, with welded cross members, distribute any unusual concentrated load that might occur between joists. Welded Wire Fabric can be quickly and easily installed, for the wide rolls cover many panels with flat, continuous reinforcement.

Stock styles of American Welded Wire Fabric provide efficient and economical reinforcement for a wide variety of concrete structures. When you specify Wire Fabric reinforcement you can find out just the proper style and weight you can use to best advantage by getting in touch with the nearest American Welded Wire Fabric sales office.

AMERICAN STEEL & WIRE COMPANY, GENERAL OFFICES: CLEVELAND, OHIO

COLUMBIA STEEL COMPANY, SAN FRANCISCO

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Every type of concrete construction needs



AMERICAN WELDED WIRE FABRIC
reinforcement

UNITED STATES STEEL

**air tools do 30% to 40% more work
with Jaeger "new standard" compressors
this book shows you how**

AT 90 LBS. PRESSURE - compare these capacities																		
	CONCRETE BREAKERS			ROCK BREAKERS			WAGON BREAKERS			SACRIFICAL BREAKERS			CLAY BREAKERS			MORTAR BREAKERS		
	Light	Medium	Heavy	Light	Medium	Heavy	Light	Medium	Heavy	Light	Medium	Heavy	Light	Medium	Heavy	Light	Medium	Heavy
Any 60 Ft. Unit	1	1	1	1	0	0	1	1	1	1	1	1	0	1	1	1	1	1
New Standard 75	2	3	1	1	1	1	1	1	1	3	3	1	1	1	1	1	1	1
105 Ft. Unit	3	2	1	1	1	1	1	1	1	4	3	2	1	1	1	1	1	1
New Standard 125	3	3	2	2	1	1	1	1	1	3	2	1	1	1	1	1	1	1
Any 160 Ft. Unit	4	4	3	2	1	1	1	1	1	5	4	3	1	1	1	1	1	1
New Standard 185	5	4	3	3	2	1	1	1	1	6	5	4	1	1	1	1	1	1
Any 210 Ft. Unit	5	4	3	3	2	1	1	1	1	6	5	4	1	1	1	1	1	1
New Standard 230	6	5	4	4	3	2	1	1	1	6	5	4	1	1	1	1	1	1
Any 315 Ft. Unit	7	7	5	5	4	3	1	1	1	7	6	5	1	1	1	1	1	1
New Standard 365	10	8	6	6	5	3	1	1	1	8	7	6	1	1	1	1	1	1
Any 500 Ft. Unit	9	8	7	7	6	5	1	1	1	9	8	7	1	1	1	1	1	1
New Standard 600	10	8	7	8	7	5	1	1	1	9	8	7	1	1	1	1	1	1

AT 70 LBS. PRESSURE - compare these capacities

	CONCRETE BREAKERS			ROCK BREAKERS			WAGON BREAKERS			SACRIFICAL BREAKERS			CLAY BREAKERS			MORTAR BREAKERS		
	Light	Medium	Heavy	Light	Medium	Heavy	Light	Medium	Heavy	Light	Medium	Heavy	Light	Medium	Heavy	Light	Medium	Heavy
Any 60 Ft. Unit	2	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1
New Standard 75	3	2	1	1	1	1	1	1	1	3	2	1	1	1	1	1	1	1
Any 105 Ft. Unit	4	3	2	2	1	1	1	1	1	4	3	2	1	1	1	1	1	1
New Standard 125	5	4	3	3	2	1	1	1	1	5	4	3	1	1	1	1	1	1
Any 160 Ft. Unit	6	5	4	4	3	2	1	1	1	6	5	4	1	1	1	1	1	1
New Standard 185	7	6	5	5	4	3	1	1	1	7	6	5	1	1	1	1	1	1
Any 210 Ft. Unit	8	7	6	6	5	4	1	1	1	8	7	6	1	1	1	1	1	1
New Standard 365	12	11	9	9	8	7	1	1	1	12	11	9	1	1	1	1	1	1
Any 315 Ft. Unit	14	13	10	9	8	7	1	1	1	14	13	10	1	1	1	1	1	1
New Standard 600	15	14	12	12	11	9	1	1	1	15	14	12	1	1	1	1	1	1

For Complete Table Showing Approximate Number of All Air Tools Each Compressor Model will Operate, See Page 30-31.



This "new standard" model 125, for example, can run 2 big breakers or 3 medium breakers at full 90 lbs. pressure (40% more efficient than at 70 lbs.) — yet costs no more than usual "single breaker" Model 105, weighs no more and does not use an ounce more fuel when its additional air capacity is not required.

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shows you how many more of every type air tool you can now operate with these "new standard" compressors . . .

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See your Jaeger distributor or send for this new buyer's guide today. Specify Catalog JC-8. **THE JAEGER MACHINE CO., Columbus 16, Ohio.**

75
cfm

250
cfm

365
cfm

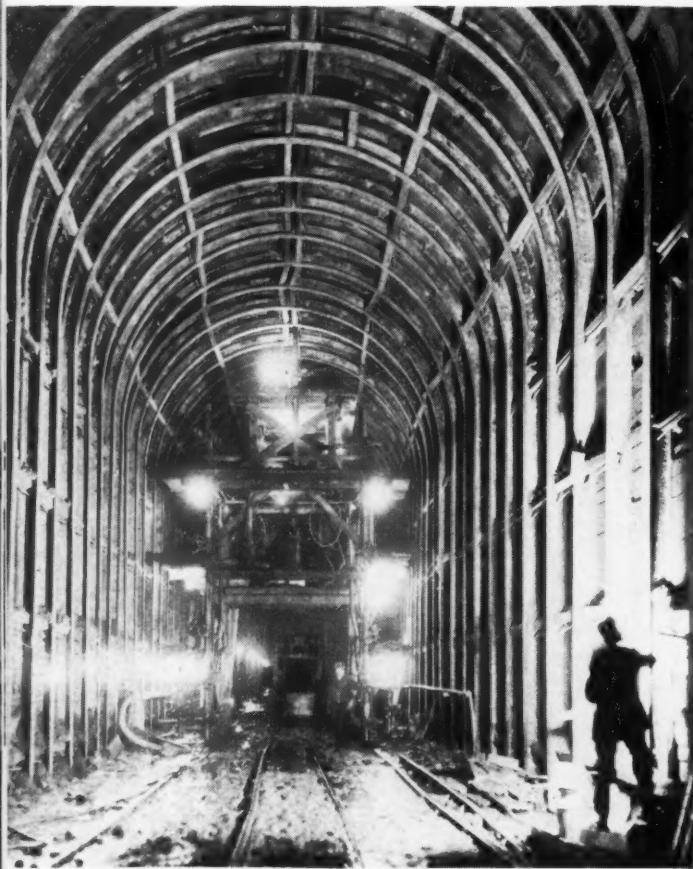
600
cfm

JAEGER

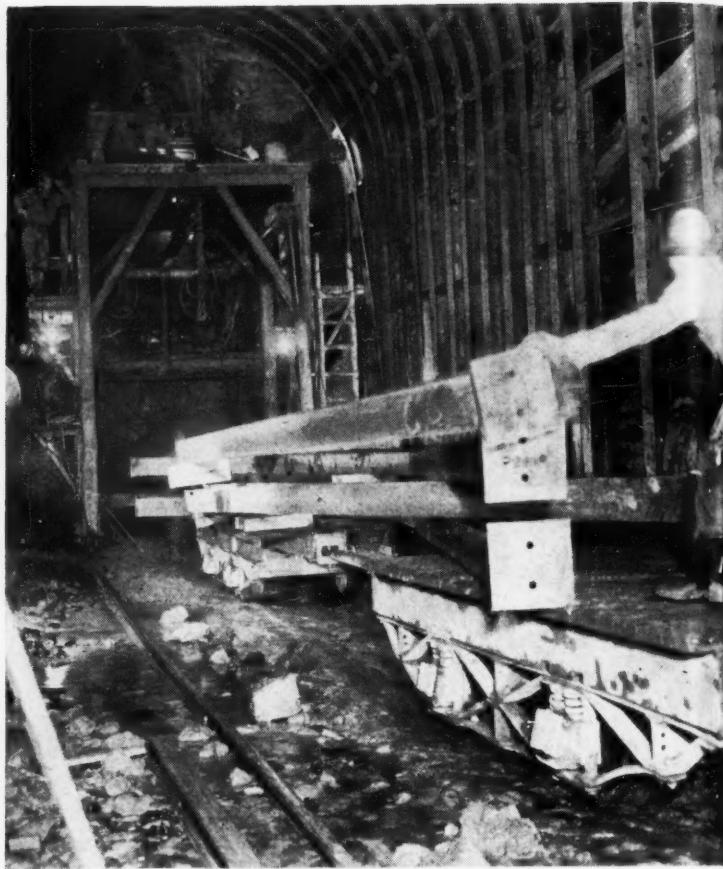
engineered equipment

COMPRESSORS • DIAGONAL SCREED FINISHERS
SCREW SPREADERS • BITUMINOUS PAVERS

Three Types of Steel Timbering for



NINE-DRILL JUMBO and Conway mucking machine drills 30x22-ft. single-track B.&O. R.R. tunnel near Phillippe, W. Va. Steel tunnel support is 8-in. H-beams covered with liner plate, water bar lagging, or tight timber lagging.



EACH PAIR of 36-ft. rib sections, with footer plates attached, is trucked into tunnel on two flatcars for erection from drill jumbo.

1... Tight Lagging for a Railroad Tunnel



MINED-OUT ENTRIES and openings in an old 9-ft. coal seam at the spring line, plus considerable seepage from above required tight lagging for drilling the 22x30-ft. single-track B.&O. R.R. Berryburg

AT PORTAL of Berryburg tunnel are (l. to r.) B. B. LUZIER, electrician for contractor; T. L. WHITE, chief engineer, and R. S. SIEGRIST, sales engineer, both of the Commercial Shearing & Stamping Co.; and JIM STRONG, superintendent, Bates & Rogers Construction Corp.

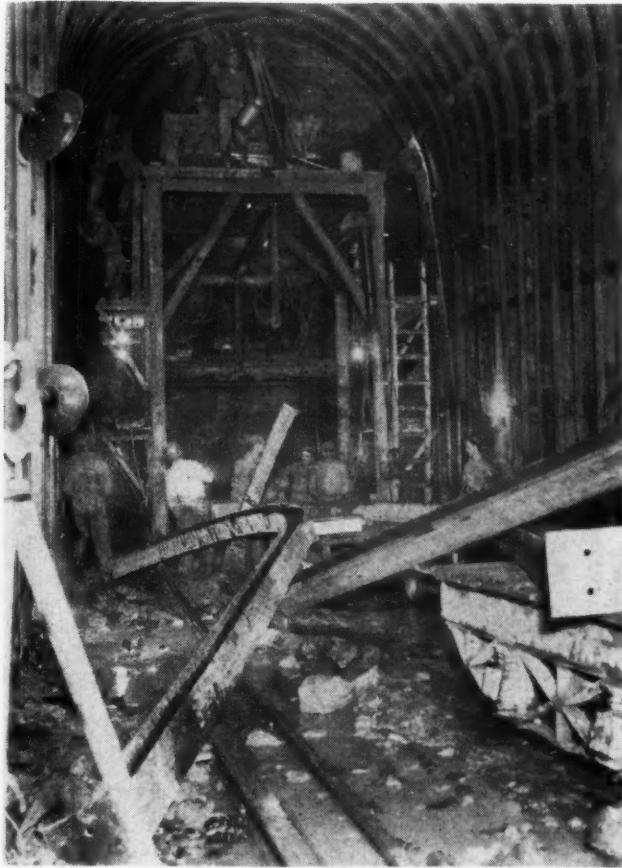
tunnel near Phillippe, W. Va. Contractor is Bates & Rogers Construction Corp., Chicago, with Jim Strong, construction superintendent.

Steel-tunnel support is made up of two-piece sets of 8-in., 34.3-lb. H-beams spaced 2 ft. and 4 ft. c. to c. with 0.20-in. steel liner plate and special water bar lagging, furnished by the Commercial Shearing & Stamping Co., Youngstown, Ohio.

The water bar lagging, designed especially for the job, was placed behind the steel ribs, from crown to spring line to divert down-

ng for Tunnels

EVERY TUNNEL JOB is different, requiring various methods of supporting the ground. Here are three excellent examples of steel timbering developed for varying ground conditions in large tunnels. All photos are by Commercial Shearing & Stamping Co., Youngstown, Ohio.



RIB SECTIONS are pulled off flatcars and erected in position by cable passing through pulley on crown rib and to winch on top of jumbo.



WATER BAR LAGGING (directly above workman) on ribs spaced 2 ft. c. to c., diverts excessive down-seeping water to drains in floor of tunnel, while tight timber lagging spans large cavities in 9-ft. coal seam extending along spring line of tunnel. Steel liner plate on ribs at 4-ft. spacing, at right, is used for light seepage.

seeping water to drains in floor of tunnel. Tight timber lagging was used at large cavities in coal seams. Liner plate on ribs at 4-ft. spacing was used where little water was encountered and water bar lagging

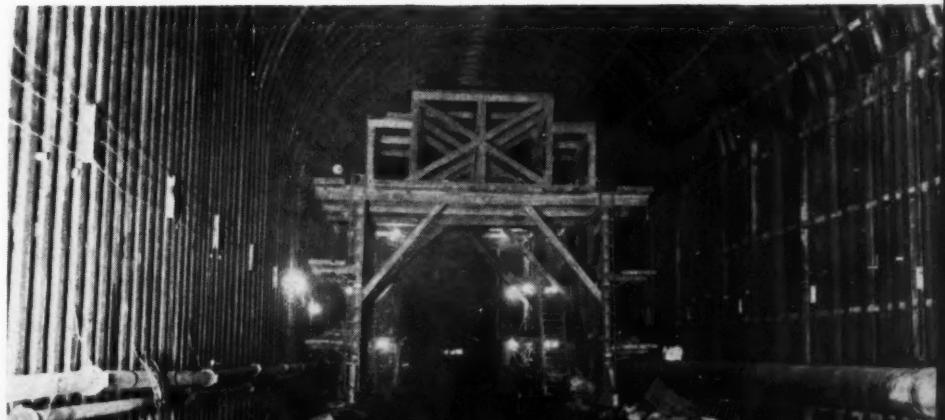
on ribs spaced 2 ft. apart was used where considerable water had to be diverted to the floor drains.

The drill carriage which mounted 9 drills also served as a steel erection jumbo. The 36-ft. sec-

tion of arch ribs was carried on pushcars to the heading and hoisted into position by a cable passing through a pulley on the crown rib and to a winch mounted on the top of the jumbo.

2 . . . Four-Piece Sets for Double-Track Tunnel

TUNNEL SUBCONTRACTOR Haley, Chisholm & Morris, Inc., Charlottesville, Va., uses four-section set of steel supports for 7,000-ft. double-track Elkhorn tunnel of Norfolk & Western Ry. near Coal-dale, W. Va. Posts are 8-in., 31-lb. W.F. beams on 18- and 30-in. centers, while arch ribs are 8-in., 35-lb. W.F. beams. Drilling is by



14-drill jumbo shown immediately ahead of steel-erection jumbo (foreground). Central section of drill jumbo has collapsible platforms to permit the passage of all equipment. Ventilation pipe is shown at the right; water and air lines at the left. General contractor is Sturm & Dillard Construction Co., Columbus, Ohio.



3 . . . Circular Ribs for Soft Ground

TWICE FLOODED during high water of the Ohio River last spring, 16½ O.D. discharge tunnel of the Monongahela Power Co.'s Willow Island Station at St. Marys, W. Va., suffered no damage as both heading and bench were breasted and well sandbagged. Liner for

the 125-ft. reinforced concrete tunnel is 16 $\frac{1}{2}$ x $\frac{1}{4}$ x 37 11/16-in. plate on 5-in., 10-lb. I-beams spaced 16 in. c. to c., furnished by the Commercial Shearing & Stamping Co., Youngstown, Ohio. Well points at 32 in. along both sides of the tunnel control the seepage while a

small electric belt conveyor moves river sand, silt and gravel from the heading to muck cars. Sanderson & Porter, New York City, are consulting engineers and contractor on the work. W. J. Monaco is project superintendent and W. V. Drake is manager for the utility.

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Symphony in Sand

STRIKING PICTORIAL EFFECT is made by Caterpillar D8 tractor (below) equipped with Caterpillar 8S bulldozer in moving man-made sand dune from storage to reclaiming tunnel at Henry J. Kaiser Co. aggregate plant near Pleasanton, Calif.



FOSTER'S

Light-Weight CORRUGATED INTERLOCKING STEEL-SHEET PILING

Write for Folder F-110-A

RAIL • TRACK ACCESSORIES



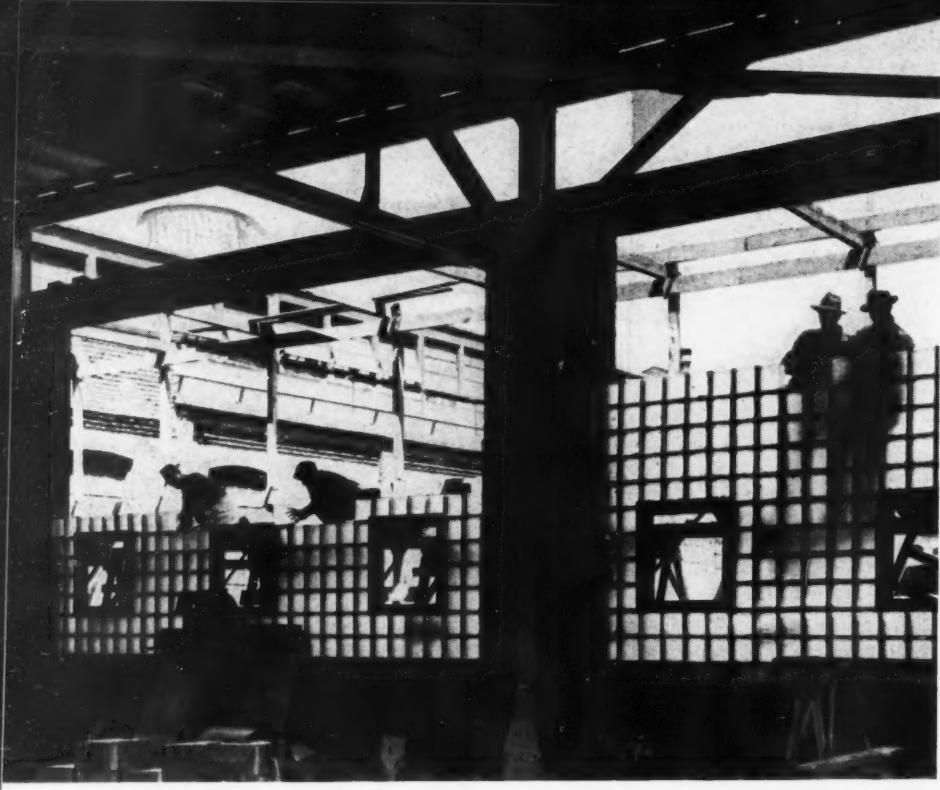
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Five convenient warehouses for prompt delivery



THESE BEAMS, above the glass block panels, were straightened out in place by application of heat from a couple of oxyacetylene torches. When the scheme proved successful, block laying was resumed, even though the particular beams overhead had not been straightened.

Gas Torches Kick Warped Beams Into Shape Without Dismantling

WHAT WOULD YOU DO if after all steel work was up on your building job you discovered 50 exterior lintel beams and channels were warped so badly that the expansion slot was far out of line with the future glass block panels? With considerable consternation F. H. McGraw & Co., New York and Hartford, ran into such a problem in building the dryer plant for General Aniline Film at Rensselaer, N. Y.

First thought was, of course, to cut out the rivets, dismantle the lintels and haul them to the nearest heavy press shop at Albany for straightening. Such procedure would not only be expensive, but also would delay progress on a fast schedule. Two McGraw old timers, U.D. (Gus) Gosselin, project manager, and Harry Matthews, general superintendent, were called in as trouble shooters.

After careful study their solution was amazingly simple. With the lintels still in place, they simply

applied heat at the right spots with a pair of oxyacetylene torches and watched the members straighten out to perfect alignment in a series of shuddering jumps. The erring members literally kicked themselves back into place.

The lintels, spanning 22 ft. between columns, are either 18-in. 55-lb. I-beams or 15-in. 33.9-lb. channels. To bottom of flanges were fastened two 2x2 in. clip angles to form an expansion recess for top of glass block wall. The outside angles were welded in place at the fabricating shop; the inner angles were fastened with cap screws. After the steel was erected, the lintels were found to be bowed inward from $5\frac{1}{8}$ to $1\frac{3}{8}$ in. maximum horizontal deflection at the center.

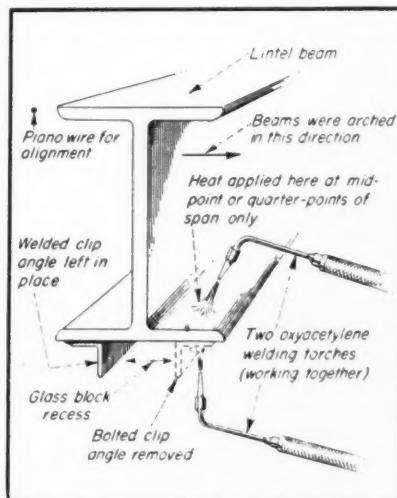
Just how the steel came to be warped is not known. This batch of steel was rushed through the shop just prior to the last steel strike, possibly without proper inspection and control. Warping may

have been caused by careless welding of the clip angles, or by rough handling in shipping.

Prior to straightening operations, the inner clip angles were removed by unbolting. Then two oxyacetylene torches applied heat simultaneously to the bottom flange only on the outside of the bow or arch (inside of building) as shown in the accompanying drawing. Where the deflection was 1 in. or less, one pair of torches was used at midpoint of span. For beams with more than 1-in. deflection, heat was applied first at mid-span, then subsequently to the quarter points, but again on the lower flange only. The area heated was confined to absolute minimum. Time of heat application was about 60 sec., resulting in a heat color range from cherry red to white hot. Then the metal was allowed to cool without quenching. The stress developed by the expansion of the hot area against relatively cold metal was enough to spring the entire member back to shape in a series of small jumps.

The 50 beams and channels were straightened out in 40 working hours. Caution dictated that cutting-type torches should not be used, for accidental openings of the cutting valve would instantly burn a hole in the flange.

F. H. McGraw & Co. figure they got out of this trouble pretty easily.



APPLICATION of heat from pair of oxyacetylene torches to lower flange on arched side of warped beams straightened them out. Same scheme was applied to lintel channels. Heat was applied at center of span only to correct deflections of under 1 in.; otherwise by subsequent application to quarter points. Metal was heated in one spot from cherry red to white hot in about 60 sec.

LEGAL ADVENTURES OF TRACTOR CONN

By LESLIE JOBB



By recounting the experiences of Tractor Conn, who symbolizes the average contractor, this series of articles, each based on the decision of an American court and presented in plain, non-legalistic terms, is designed to help construction men avoid costly legal pitfalls.—Editor

The Case of the Debatable Note



"Three months after the death of my mother-in-law, I promise to pay," is a valid promissory note so far as it goes, as it is payable on the occurrence of an event which is sure to happen.

"Three months after my marriage I promise to pay," is not a promissory note, as it is payable on a contingency which may never occur.

These are very elementary classroom examples compared to a more enigmatic question which was presented to the Supreme Court of Iowa. In this case Tractor Conn held a note which was payable on the settlement of a certain estate, and one party argues that this was an event which might never occur.

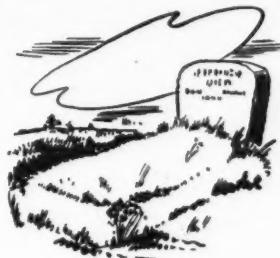
"The Iowa law requires that estates be settled within three years, so the event must occur within that time," Tractor Conn maintained.

The Iowa Supreme Court, however, in the case referred to, ruled that the document was not a note.

"It can be said to have been morally certain, when

the instrument was executed, that the estate would be settled, and fixes a period within which it shall be done; but it does not, of and by itself, settle them. The presumption is that the law in this regard, as in others, will be obeyed; but this presumption does not amount to absolute certainty. The enforcement of the law depending on human agencies is liable to be affected or controlled by many circumstances. Cases where it is not only not fully enforced, but is openly violated, are within the experience of all, so that it is impossible to predict, with moral certainty, that a thing will be done, simply because it is the command of the law that it shall be," said the Court.

The Case of Collecting From the Dead



"I see you have been appointed administrator of the Henry Jones estate," Tractor Conn observed.

"Quite true," the administrator admitted.

"I suppose I'd better file a sworn statement of my account as the law requires. He owed me \$3,500."

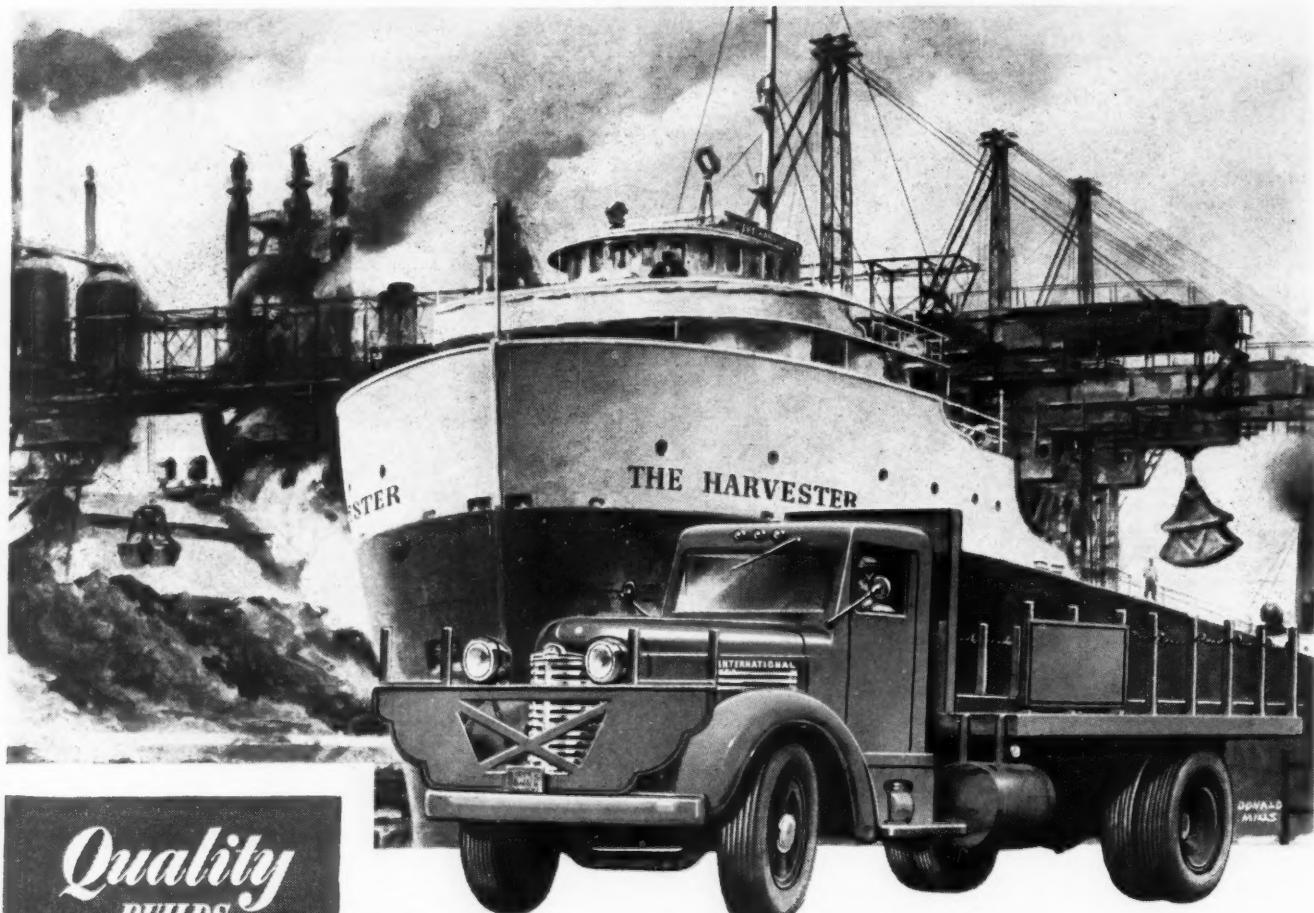
"You needn't bother," the administrator assured him. "I know of my personal knowledge that your account is correct, and it will be paid as soon as I've collected some of the assets of the estate."

Tractor Conn accepted this statement at its face value and filed no account. The administrator did not pay, Conn sued, and then the administrator set up the defense that no statement had been filed as required by the law and that the time for doing so had expired.

"I admit that I did not file a claim, but it was because I relied on the administrator's statement that it was unnecessary, and he cannot take advantage of his own fraud," Tractor Conn argued, but the Minnesota Supreme Court ruled against him in a case reported in 177 N. W. 354.

"The administrator cannot waive the absolute bar created by statute for the protection of estates. He cannot abrogate a positive rule of law requiring probate of claims within the prescribed period by conduct of his own, however misleading or designing," said the Court, and the Alabama, Colorado, Mississippi, Missouri, Nevada, New Hampshire, New Jersey, Vermont and Washington courts have arrived at the same conclusion.

More Legal Adventures of Tractor Conn Next Month



Quality
BUILDS
Quality

THAT'S THE INTERNATIONAL WAY
from raw materials to finished trucks

Above: the S.S. Harvester at docks of International Harvester's Chicago Steel Mill.

International Truck quality begins long before truck building starts. It begins with control of the raw materials that produce rugged truck strength and power.

Quality Builds Quality! That rule governs the selection and approval of every material and part used in every International Truck. Here's one example:

- International Harvester's own ships bring iron ore from Minnesota's Mesabi Range down the lakes.
- These ships also transport coal from International Harvester's mines in Kentucky. The coal is loaded at the lake port of Sandusky, Ohio.

■ Ore and coal are brought to International Harvester's steel mill in Chicago, where *Quality* steel, including one of a special type developed by International Harvester's technicians, is made to rigid specifications for International Trucks and International Engines.

• Yes, *Quality Builds Quality*. Note with what success:

For 16 years more new heavy-duty International Trucks have been bought by American commerce and industry than any other make.

Motor Truck Division
INTERNATIONAL HARVESTER COMPANY • Chicago



Tune in James Melton on "Harvest of Stars." CBS Wednesday Evenings.

INTERNATIONAL Trucks



Announcing McCULLOCH 1-man 2-man CHAIN SAWS

HERE'S THE FIRST REAL ANSWER for high-speed, economical land clearing and timber bucking or felling. The McCulloch is a husky wood-cutting wizard, with many new features to speed timber work in construction, railroad, and tree-maintenance operations.

All-purpose Rip-Cross chain is easily sharpened by hand filing in the field. Its curved cutting teeth never need setting.

360° swivel permits close felling and underbucking. In addition, the engine will operate in any position, because of its McCulloch floatless carburetor.

Automatic clutch stops the chain when the engine is idling. This safety feature also prevents the engine from stalling in a timberbind.

The handle detaches instantly, for one-man use or to permit pulling the blade through a cut.

Correct chain tension is automatically adjusted.

Many other features—kickproof recoil starter, stainless-steel blade and conveniently grouped engine controls—save time and effort on the job.

PRICES

20-inch chain saw	...\$385.00
36-inch chain saw	...\$395.00
48-inch chain saw	...\$410.00
60-inch chain saw	...\$425.00
20-inch bow saw	...\$425.00

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*Fast-cutting, light-weight
McCulloch chain saw simplifies
cutting even more in hilly terrain.*



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Please send complete information on the 5-hp. McCulloch chain saw.

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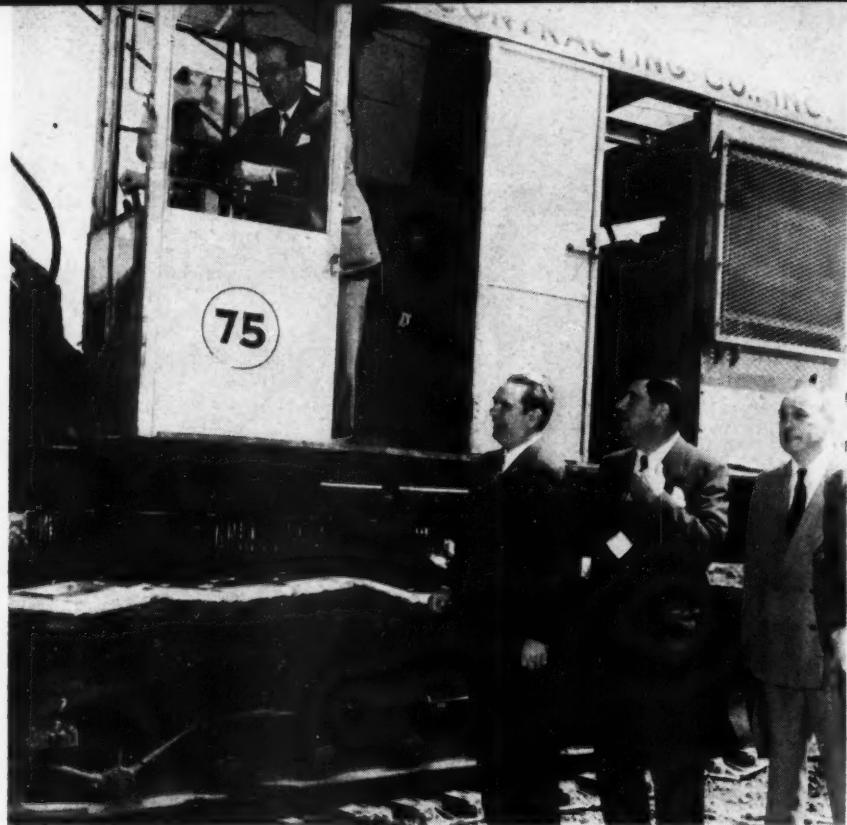
Firm name. _____ Type of work. _____

Address. _____ City. _____ State. _____



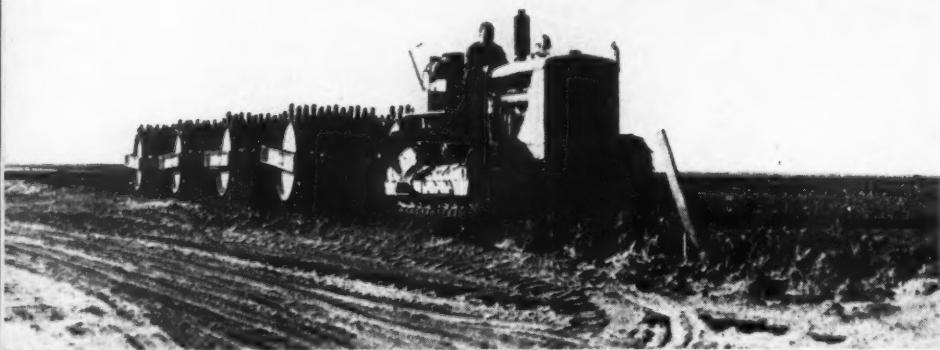
WAY DOWN UNDER, Australian desert, 240 mi. northwest of Adelaide, becomes base for secret rocket experiments. Eight sheep's-foot rollers (below), in four tandem sets, compact subgrade for airport runway at Woomera, experiment station rangehead. Three airfields are under construction with runways up to 2 1/2 mi. long.

British Combine Photo



MOMENTOUS OCCASION in international history is breaking of ground for United Nations headquarters at New York City Aug. 14. At controls of Lorain 820 shovel at ceremonies is BENJAMIN COHEN, Assistant Secretary-General, United Nations. Watching his efforts are New York City's Mayor WILLIAM O'DWYER, Comptroller JOSEPH LAZARUS, and Commissioner of Parks ROBERT MOSES.

Mal Gurian Photo



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BUSINESS AS USUAL. Reconstruction (below) of badly bombed railroad station at Salerno, Italy, proceeds without too much interference with normal train traffic. Station and town were wrecked in bitter fighting between German and Allied troops five years ago.

Wide World Photo

Conveyor system for delivering 650 tons of aggregate per hr. operates cross country on 9,000 steel troughing idlers. Dam is being built to 263-ft. height by group of nine contractors under name of Ozark Dam Constructors, of Houston, Tex.



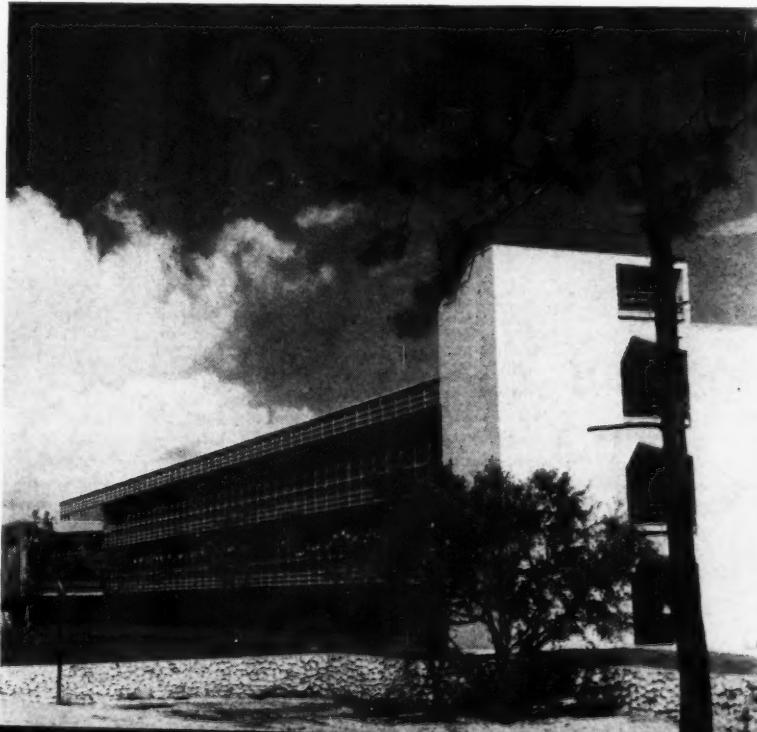


25-FT. CONCRETE TUBE takes shape across Washington desert on Dry Coulee Siphon No. 1 on West Canal of Columbia Basin project. Utah Construction Co. and Winston Bros. Co. are doing job jointly for U.S. Bureau of Reclamation.

Photo by Foss, U.S.B.R.

DESIGNED FOR COOLNESS AND SHADE
at Florida site is new 600-ft. long, reinforced-concrete rigid-frame classroom structure (below) for University of Miami, planned to take advantage of prevailing strong breeze from southwest. To provide shade on west side, long galleries are cantilevered beyond wall so that successive stories overhang. On each side, vertical fins intercept sun's rays so that direct sunlight does not penetrate any room. Structure designed by Robert Law Weed architectural firm of Miami, assisted by Marion I. Manley, was built by university's construction department which let subcontracts.

→
STEEL ERECTION progresses on raw coal bin structure at world's largest coal washing plant being built for Jones & Laughlin Steel Corp. near Brownsville, Pa., by F. H. McGraw & Co., New York. Steel is hoisted to place by Manitowoc Speed Crane.



MOTION PICTURES OF OLYMPIC GAMES at Wembley Stadium, London, are obtained with aid of mobile tower of steel tubing supporting cameras on 8-ft. dia. circular platform 24 ft. above ground level, specially designed and fabricated by electric arc-welding by Scaffolding (Great Britain) Ltd. Cameramen reach platform by ladder rungs built into stem.

October — 1948 CONSTRUCTION METHODS — Page 63



Why TOURNADOZER

✓ gets more work done . . .
✓ makes more money for YOU!

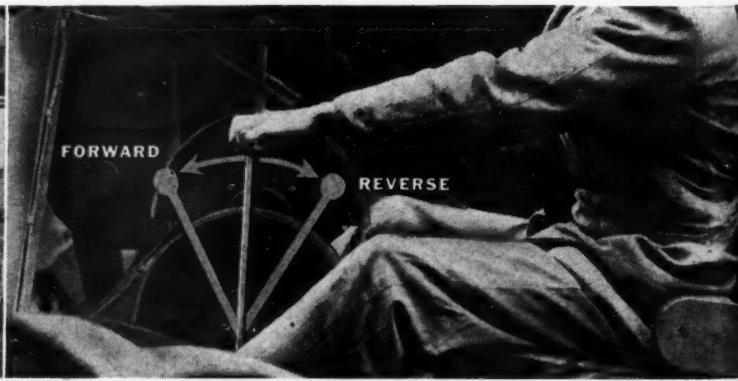


1 FASTER CYCLES — "C" Tournadozer gives you double average crawler dozing speed forward . . . reverse three times faster. You use higher gear speeds through instant speed selection. Saves 10 seconds every time you shift.



3 180 HP PUSH OR PULL — Hangs on and pulls under heavy load . . . low compression ratio diesel . . . more power with less fuel. 4-wheel drive . . . quick pick-up for fast get-away . . . climbs steep grades.

2 AROUND JOB 15 mph — Means more jobs done, less non-productive dozer time. One Tournadozer can clean up around 2 or 3 shovels, also maintain roads and service dump. A half mile is only two minutes away.



4 INSTANT GEAR SELECTION — Change gear ratio instantly, automatically, with finger-tip air-valve lever. Constant power retains momentum . . . keeps dirt rolling. Travels 100' in 3rd gear, forward or reverse, while crawler shifts gears.

R. G. LeTOURNEAU, Inc., Peoria, Ill.: Please send information on "C" Tournadozer

Specifications Price Delivery Where to See

NAME..... TITLE.....

COMPANY..... BUSINESS.....

ADDRESS..... CITY and STATE.....

TYPE of WORK for TOURNADOZER.....

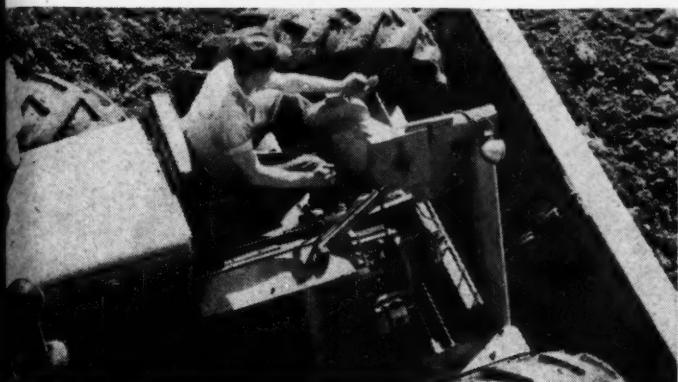
Tournadozer-Trademark C96



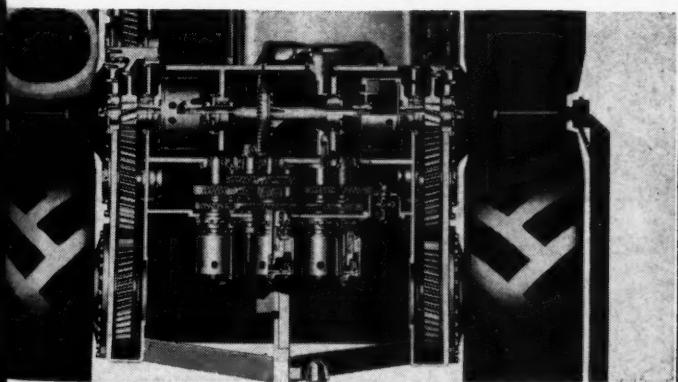
5 **QUICK MANEUVERABILITY** — Short-coupled 6' wheelbase, 4-wheel air brakes, instantaneous shift, give you a compact fast-stepping unit. Means better application of power, easier synchronization with other units.



7 **FAST BLADE ACTION** — New, powerful, air-actuated PCU plus improved blade bite gives faster, better controlled blade to match high dozing speed. 44" lift . . . unlimited drop. Smooth, accurate, short-coupled cable-control.



9 **EASY TO OPERATE** — Compressed air takes the work out of Tournadozing. Simple controls are air-actuated . . . easy to reach . . . easy to operate. No stretching, no twisting, no fatigue slow-down.

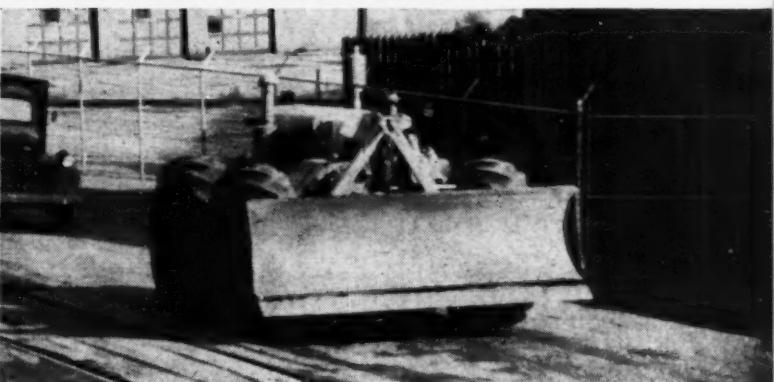


11 **LOW MAINTENANCE** — Giant tires absorb shocks. No multitude of moving parts constantly grinding in dirt. Dust-proof case encloses gears, shafts and bearings, operating in oil. Big "oversize" clutches, brakes.

6 **BIG BOWL CAPACITY** — 11'2" blade with bowl 3'7" high fills fast, drifts a big 2 1/2 yard load. Rolls dirt easily, holds well on sides for big pay loads. Blade quickly tilted to cut in on side hill or ditch.



8 **FULL OPERATOR VISIBILITY** — Operator sits up front ahead of engine, can see where he's going . . . what he's doing. Easier to line up for pushing . . . work over a bank . . . safer to clean up under shovel dipper.



10 **TRAVELS ANYWHERE** — Makes self-powered moves over macadam, pavement or black top . . . crosses curbs, rails or driveways without planking. Works in plant yards, shop or factory with no damage to surfacing.



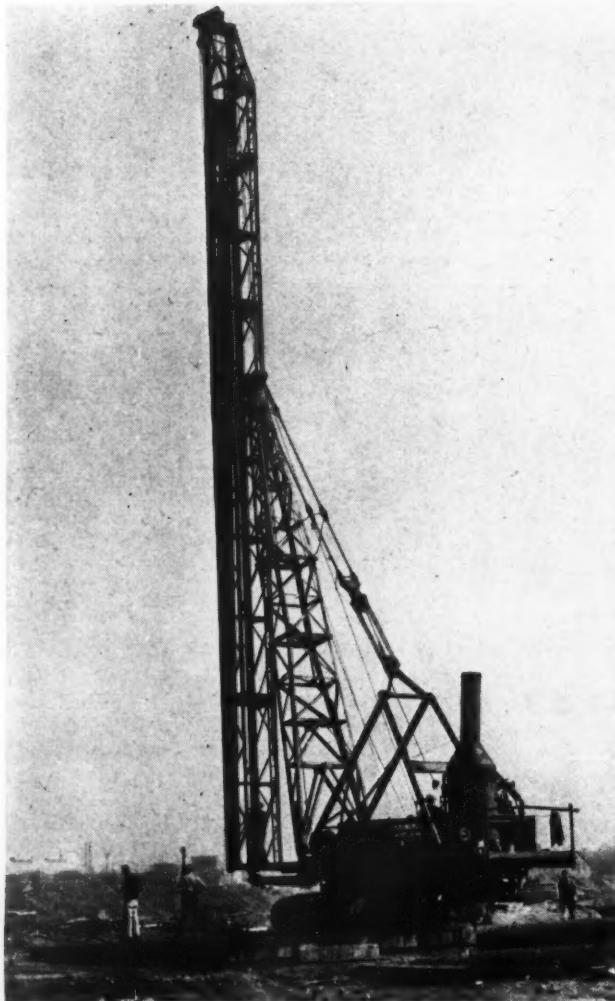
12 **GETS MORE WORK DONE** — Does 2 or 3 cycles to crawler's 1. Makes push contact faster . . . loads faster. Makes job moves much faster . . . handles more assignments . . . utilizes waiting time to do odd jobs.

TOURNEAU
PEORIA, ILLINOIS



TOURNADOZERS

'S RUBBER THAT PUTS THE ACTION IN TRACTION



DESIGNED SOLELY for driving piles, the new fleet of 10 Raymond Concrete Pile Co. drivers are efficient rigs with steam boilers, swivel-mounted leads, and adjustable counterweights. Drivers can be dismantled and collapsed for rail shipment.



NEW DRIVERS will handle any position of batter piles. Extension arms at front of rotating bed frame are for boom guy anchors. Boom A-frame can be collapsed for shipping; boom and leads are easily dismantled.



MAIN HOIST steam engine is reversible. Gas-driven compressor on front of top bed frame is for atomizing boiler fuel oil at start of firing. Upper and lower main bases are all-welded construction.

Piledrivers

Built to Order

EXCEPT FOR THE OLD SKID RIGS, most pile-drivers are simply an adaptation of some kind of crane or derrick carrying a set of leads. Yet piledriving is a specific operation that requires specially built machines if full efficiency is to be obtained.

Recognizing this fact, Raymond Concrete Pile Co., by far the biggest operator in its field, has designed a steam-engine crawler rig especially for driving piles. H. O. Penn Machinery Co., New York, is now completing the tenth such rig.

The design called for a machine to drive battered piles in any direction, and also one that would be fully mobile, which led to crawler mounting. And, of course, the rig should be collapsible for shipping

by rail. Furthermore, the whole rig was designed for steam operation from an oil-fired boiler.

Lower and rotating bases are both all-welded construction. The main hoist engine is custom-built, equipped with a reversing valve for rotation in either direction. Auxiliary equipment includes a steam-powered generating plant for lights, and a gas-powered compressor for atomizing the fuel oil until sufficient steam pressure is generated to atomize the oil with steam.

At the rear of the rotating frame is a pair of retractable arms that can take extra counterweight up to 8 tons. At front is another pair of extension arms to which boom guy anchors are fastened to prevent the boom from whipping over backwards.

Extensible leads, minimum 64 ft. long, are hung on the boom tip through a swivel connection that permits universal positioning of the leads. The lower end of the leads can be braced against the front of the rotating bed frame.

The new rigs are fabricated and assembled at the big H. O. Penn Machinery Co. shops in New York. Hank Killian, shop superintendent, is in charge.



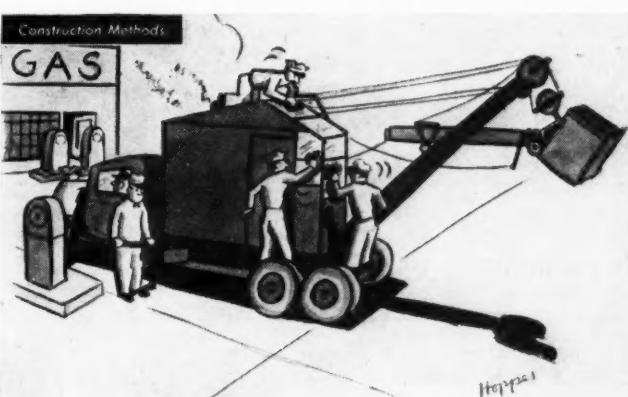
WITHOUT LEADS, new piledriver looks like cableless steam crane.



"Pardon me, where do you buy those kind of lighters?"



"Ya wanna show WHO to WHAT professor?"



**Now more than ever
you need
the finest
aggregate producing
equipment!**

**a
Cedarapids
Junior Tandem**



Cedarapids

Built by
IOWA



IN the days of higher construction costs, the need for lower cost aggregates is more urgent than ever. That's why you should buy the most efficient aggregate producing equipment — equipment that has big capacity, low operating cost and minimum maintenance cost. A Cedarapids Junior Tandem gives you all these features plus flexibility that will fit all kinds of rock and gravel conditions.

The horizontal vibrating screen assures greater capacity and the higher efficiency and closer grading needed for meeting

the most exacting specifications. Roller bearing jaw and roll crushers provide plenty of capacity for jobs requiring unusually high percentage of crushing. Operators report production of 110 tons an hour—and more—crushing to $\frac{5}{8}$ " with 75% crushing.

When you buy a crushing plant — follow the lead of the hundreds of producers who are cutting their costs by buying the best—buy Cedarapids.

IOWA MANUFACTURING COMPANY

Cedar Rapids, Iowa, U.S.A.

THE IOWA LINE of Material Handling Equipment Includes:

ROCK AND GRAVEL CRUSHERS • BELT CONVEYORS • STEEL BINS • BUCKET ELEVATORS • VIBRATOR AND REVOLVING SCREENS • STRAIGHT LINE ROCK AND GRAVEL PLANTS • FEEDERS • TRAPS • PORTABLE POWER CONVEYORS • PORTABLE STONE PLANTS • PORTABLE GRAVEL PLANTS • REDUCTION CRUSHERS • BATCH TYPE ASPHALT PLANTS • HAMMERMILLS • DRAG SCRAPER TANKS • WASHING PLANTS • SOIL COMPACTION UNITS • STEEL TRUCKS AND TRAILERS • KUBIT IMPACT BREAKERS

There's **EXTRA** Performance in **EVERY** Attachment with



Bulldozer



Loader



Roller



Scarifier

all-wheel DRIVE **all-wheel STEER**

An unrivaled line of attachments is available for the "88-H," "99-H" and Master "99" Power Graders . . . each attachment designed for a type of work ordinarily done by a separate machine. All-Wheel Drive and All-Wheel Steer make it possible to use either a front- or rear-mounted attachment with no sacrifice of operating efficiency, where ordinary graders—handicapped by front-end inertia and lack of rear steer—would be helpless through loss of traction or directional control.

Austin-Western Power Graders—*without* attachments—work more hours each year than ordinary graders; *with* attachments, their uses are multiplied and their value correspondingly increased.

AUSTIN-WESTERN COMPANY, AURORA, ILLINOIS, U. S. A.



V-Plow

BUILDERS OF **Austin**  **Western** ROAD MACHINERY
SINCE 1859



SLIP-PROOF steel or iron surfaces, to minimize accidents from falls, are produced by Metallizing Engineering Co.'s Ruf-Tred tool, a vibrating electrode holder used with either ac. or dc. welding machines to deposit hard, rough bead lines $\frac{1}{8}$ in. wide and $\frac{1}{16}$ in. high.



RESEMBLING GIANT BUG with stinger in its tail, a Ford tractor-mounted earth auger drills holes for highway guard-rail posts at South Coulee Dam in Washington. Sparling Steel Co., Spokane, subcontractor, is putting 12-in. holes down 3 ft. 4 in. in fast time with this rig.

Photo by Fuller, U.S.B.R.

SKYHOOK (below) transports 9 tons of 30-in. pipe for Trans-Arabian Pipeline Co. 1,070-mi. project in Arabia from unloading dock, 3 mi. off shore at Ras el Mishaab in Persian Gulf, to storage depot on land. Carriage is self-propelled by gas engine, which also powers hoist drum for lifting loads. Operator rides cab in carriage and communicates with shore office by two-way radio. Towers are set into shallow bay bottom. Aerial transportation system was developed and built by Pointer-Willamette Co., Portland, Ore., which conducted tests in this country described in "Construction Methods," p. 101, Dec. 1947.

Wide World Photo

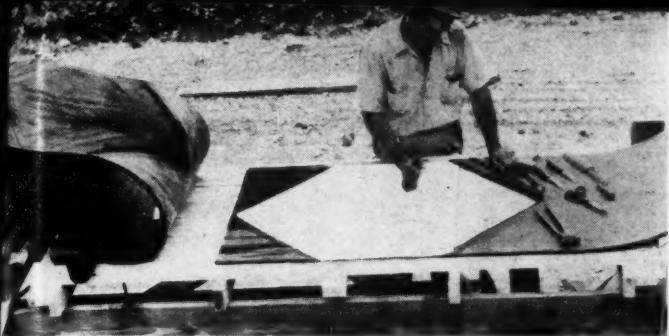
CONSTRUCTION METHODS

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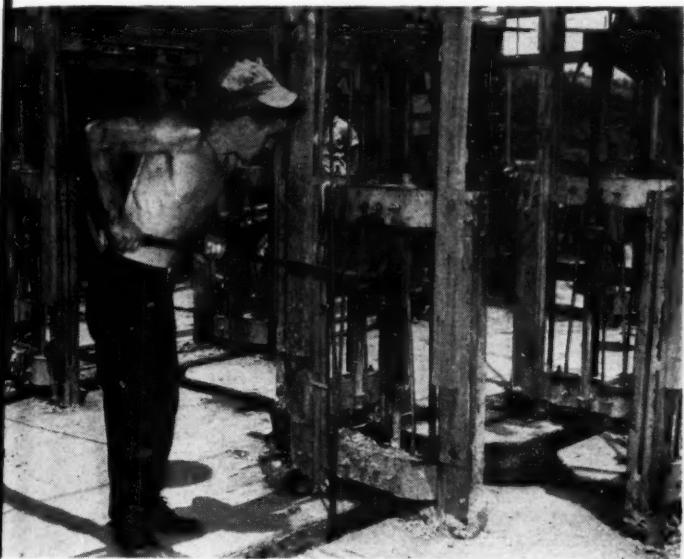
SAFETY on hazardous jobs requiring worker to be suspended in air high above ground is assured by this Buckingham industrial safety seat that hooks into saddle and cannot become disengaged while in use. Chest harness attached to clamp on supporting cable does not impede worker's freedom of motion.

TAKING ADVANTAGE of driving public's respect for traffic lights, James B. Kenney, Denver contractor, installed lights (below) operating on 30-sec. intervals to guide single-lane traffic through several bridges rebuilt under traffic north of Longmont, Colo.

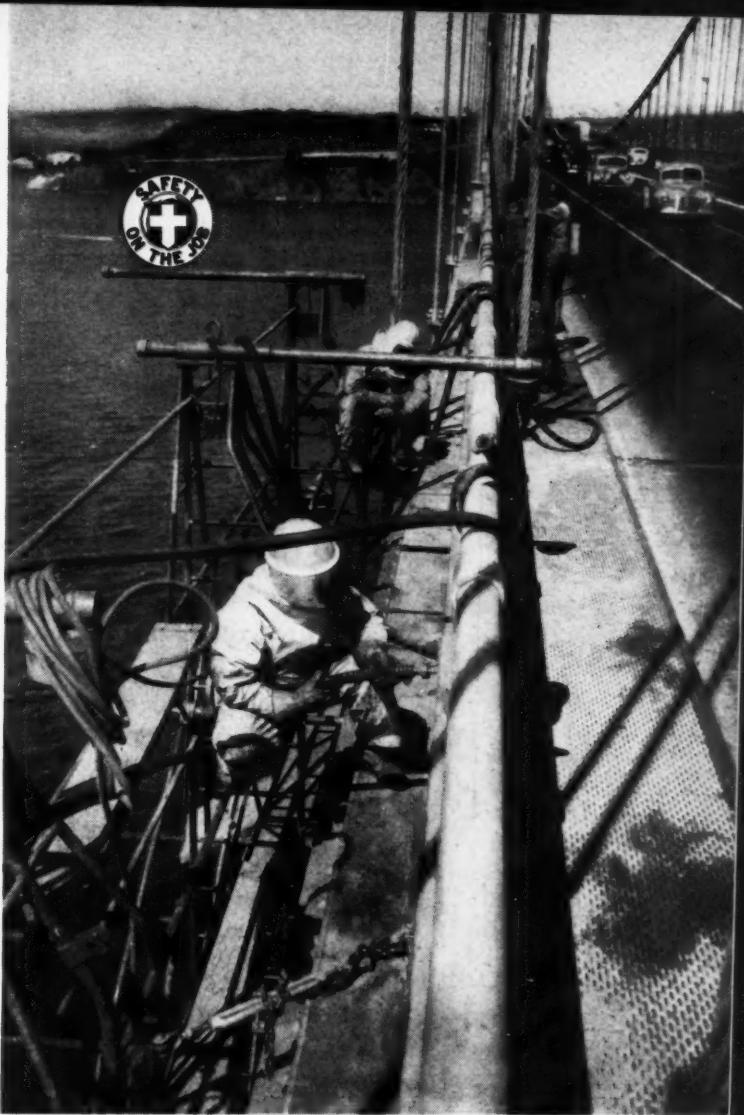




SPLICING OF CONVEYOR BELTING on 7-mi. long material transport system for Ozark Dam Constructors at Bull Shoals Dam on White River in Arkansas is done on job with portable electric vulcanizer. Goodyear 36-in. wide belting will operate cross country in series of 21 flights from quarry to damsite to deliver 650 tons of aggregate per hr.



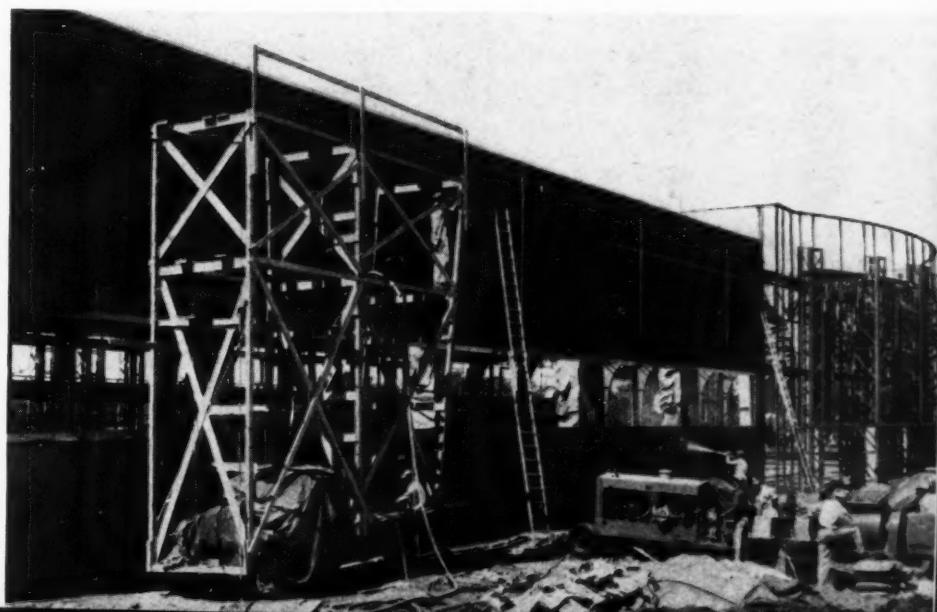
SLIP FORMS, raised with Simplex ratchet jacks riding on rods embedded in wall concrete, encase complicated blending bin structure for world's largest coal washing plant being built for Jones & Laughlin Steel Corp. near Brownsville, Pa. Concrete for multiple bin walls is wheeled to forms in buggies over platform shown here, which rides up with form structure. McDonald Engineering Co., Chicago, is doing this part of job for F. H. McGraw & Co., New York, general contractor on project.



PAINTING GOLDEN GATE BRIDGE at San Francisco is never-ending, but safe job. First repainting started in 1936, is only 80 percent finished now. Chippers and sand-blasters, shown here, wear heavy gloves and air pressure helmets for safety against flying particles. They work from special scaffold designed for job. In 12 years paint crew has had only one serious accident—one worker was struck by car on roadway and fatally injured.

Wide World Photo

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TRUCK-MOUNTED SCAFFOLD solves tedious scaffolding problem on \$800,000 Automobile and Aviation Building nearing completion at Texas State Fairgrounds in Dallas. Working from three platforms on portable scaffold, M.&M. Construction Co. is erecting entire exterior wall of 84,000-sq.ft. building. Wall is made up of Stran Steel framing on steel columns; 7/8-in. Celotex Corp. Celo-Siding insulation board; 4x4-in., No. 8x8 welded wire fabric; 1 3/4-in. Jetcrete concrete with 1/4-in. white cement and sand finish. Insulation board and wire fabric are held in place by Nelson Stud Welding metal lath studs equipped with 2-in. sq. washers and welded to steel framing.

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ONE
LANE
TRAFFIC



**WHEN YOU PUT
MODERN**



**ROAD MACHINERY
TO WORK...**

Huber's close contact with the users of road machinery reflects itself in the modern design, functional utility, and economical operation of Huber road machinery. The ability of Huber machinery to do your job adds greatly to the efficiency of your road building or maintenance operation.

Added to Huber's "job-ability" is their fine record for long trouble-free service — a point that really counts when it comes to cutting costs. Idle equipment is expensive equipment. With Huber your "downtime" will decrease regardless of your operating conditions.

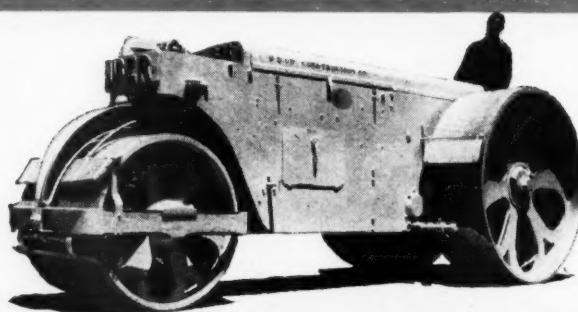
You'll be falling right in line with hundreds of experienced operators if you replace your present equipment with Huber road machinery. Where is there better proof of the many advantages of doing your job the Huber way than in this nationwide acceptance of Huber machinery? Write today for bulletins describing specific Huber machines.



Take the Huber Maintainer loose on any maintenance work. It's a real money-saver as a bulldozer, lift loader, barn leveler, patch roller, snow plow or rotary broom.



Take the Huber Tandem wherever you need a variety of compacting and rolling weights. Variable weight sizes from 3 to 14 tons.



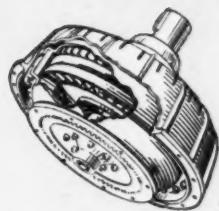
For years of service the Huber 3-Wheel Roller is unsurpassed. They're rugged built in sizes from 5 to 12 tons.

THE HUBER MFG. COMPANY • MARION, OHIO, U. S. A.

HUBER

**3 Wheel • Tandem
ROAD ROLLERS
and
MAINTAINERS**

YOU SAVE MONEY AT *Both* ENDS with the hydraulic clutch on the LORAIN-820



THREE'S relentless power back of the dipper of a 2-yd. Lorain-820—power that stays alive, "hangs on" in the most rugged digging, delivers more yardage per day. Yet the inevitable and unavoidable shocks and impacts resulting from such digging aren't "socked" into the turntable. The same Hydraulic Clutch that improves "hang on" and prevents engine stalling also absorbs and cushions shock—swallows up those strains and

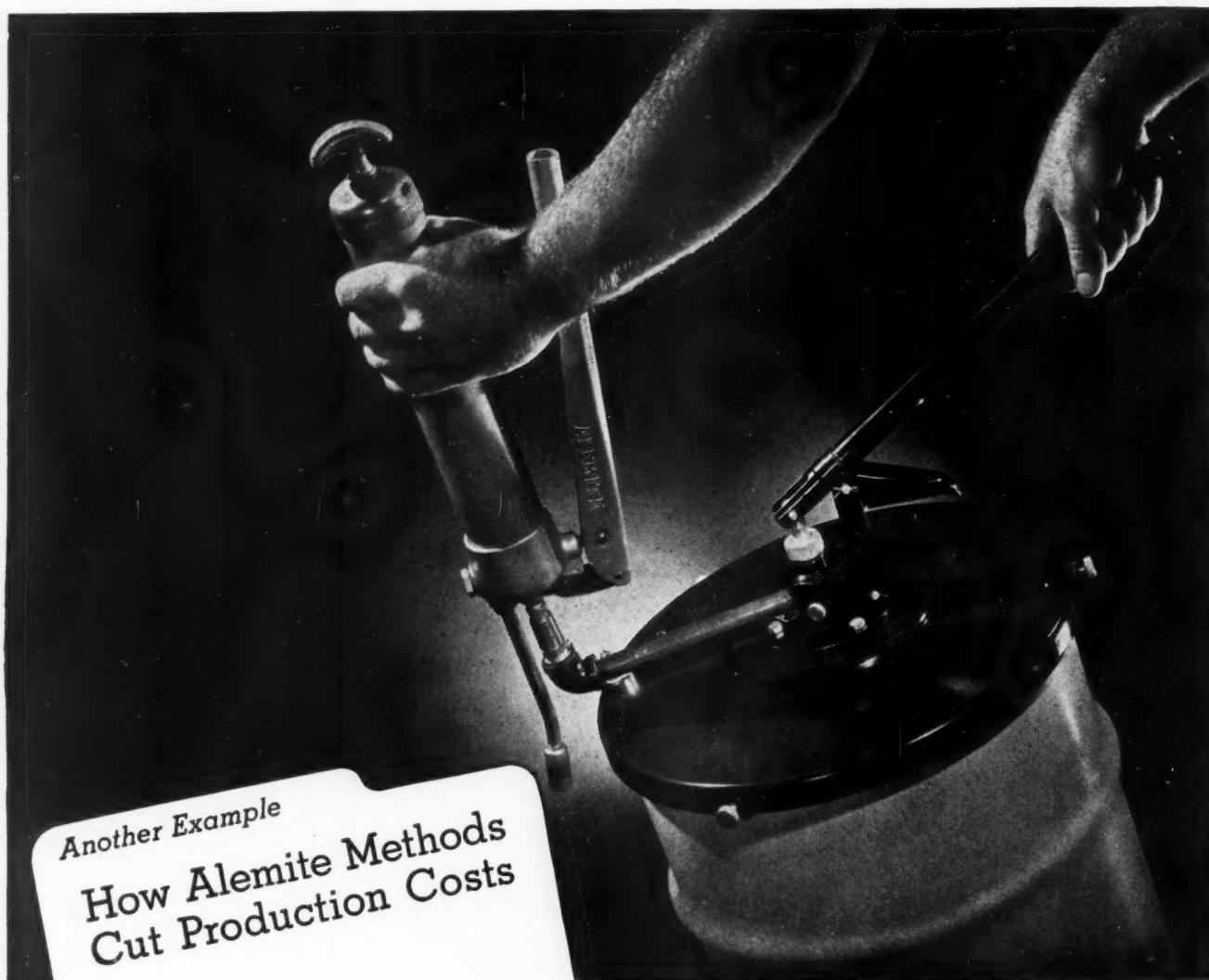
stresses that can be so costly to cables and mechanism; reduces vibration to a minimum.

More dependable power at the dipper with minimum shock and vibration in the turntable—that's the two-way saving of the Hydraulic Clutch that has helped put the 2-yd. Lorain-820 right at the top among big yardage and profit producers. For complete information, call or write your local Thew-Lorain distributor.



THE THEW SHOVEL COMPANY • LORAIN, OHIO

Thew
Lorain® **820**



Another Example
How Alemite Methods
Cut Production Costs

Saves 3 $\frac{3}{4}$ Hours Per 100 lbs. of Grease!



Your Lubrication Methods May Be More Antiquated Than You Suspect

A simple thing like using the hand and paddle method to fill a grease gun boosts maintenance costs . . . and that means lower productive capacity per dollar per machine. The Alemite Representative is a *specialist* in modern methods of handling and applying lubricants. A five minute conference with him may open your eyes to new cost-cutting ideas. So, contact your Alemite jobber, or write Alemite, 1840 Diversey Parkway, Chicago 14, Illinois.

Increases Productive Time of Machines by Fast, Clean, Mechanized Handling and Application of Lubricants

You use hand guns in your plant. Then listen to this. Alemite's new method of loading a hand gun can save up to 3 $\frac{3}{4}$ manhours for every 100 lbs. of grease you use! Three and three-quarters hours you can apply to other much needed preventive maintenance work.

A minor operation yes, but it's such savings that help to augment your drive to cut production costs. In addition, this Alemite Method saves grease and eliminates mess . . . keeps dirt and moisture out of lubricants.

It's just one of many ways that Alemite Methods simplify lubrication procedures and add more productive time to machines. The Alemite Representative can show you

case after case where time study analysis proves that modern Alemite Methods eliminate costly, time-consuming handling of oils and greases . . . slash time-outs for lubrication . . . completely mechanize barrel-to-bearing lubrication. He can show you how to lubricate as many as 300 bearings from one safe, central point while the machine keeps on producing! Get the complete facts, today!

ALEMITE



MODERN LUBRICATION METHODS
THAT CUT PRODUCTION COSTS

*Cited
for
Service*

OUT OF THE PIEDMONT textile and tobacco country of the Southeast comes one of America's few really Scotch contractors, William Muirhead, president of William Muirhead Construction Co., Durham, N. C. A leading builder in his home area, he is nationally known for his wartime presidency of the Associated General Contractors of America. In fact, Bill's intense devotion to contractor organizations is one of his outstanding traits. Few contractors spend more time and effort on the welfare of their industry, not many stand in as high regard with their clients, and probably none has more pleasure in conducting his business than does Bill Muirhead.

Bill first saw the light of day at Motherswell, Scotland, Nov. 24, 1900, and his speech still smacks of the tang of the heather. He was graduated from Royal Technical College at Glasgow in 1921, getting a degree in both civil engineering and construction. One of his most cherished honors was being named an Associate of his alma mater in 1932. Royal Tech conducts a co-operative course, so he had some construction experience before graduating.

In 1922 Muirhead came to the United States and spent a year with Concrete Steel Co. of New York. A desire to get into actual construction led him into a position with Consolidated Construction Co. at Durham, N. C., where he decided to settle down permanently. After a year with Consolidated, he



WILLIAM MUIRHEAD

organized his own contracting firm in 1924, specializing in textile plants and tobacco warehouses, with headquarters at Durham. Here he soon learned to bid in the only language tobacco companies can understand—price of warehouses per hogshead capacity. During the ensuing years he has branched out into general building construction.

In 1932 he was president of the important Carolinas Branch, A.G.C. His service with the national organization includes that of president, vice-president, executive and other committee memberships, and treasurer, a position he now holds. His advice and counsel are continually sought on both local and national contracting problems.

During the war he built the Charlotte (N.C.) Quartermaster Depot himself and Camp Butler at Durham as a joint venture with Triangle Construction Co. Despite his military construction activities, he devoted considerable time and

energy to the problems of contracting under war conditions as vice-president and president of A.G.C. At the same time he was looking ahead to post-war construction, promoting "Now is Blueprint Time." He also has long advocated accelerated depreciation of new construction investment as a means of stimulating building and housing.

In March, 1945, before V-E Day, he was sent to Europe as a member of the Materials Division of Technical Intelligence to report on German construction materials and methods. His exact military rank on this occasion has always been questioned, though Bill claims he rated as Brigadier General, at least for certain non-military occasions.

Organized contracting owes a lot to Bill Muirhead. He believes in it, loves it and works incessantly for it. Long may he continue to share his wisdom, sound philosophy, ideals and ideas with the industry.

ONE PICTURE LIKE THIS
IS WORTH A THOUSAND WORDS!



Discharge Conduit for Steam Station, Terminal Island, California.
Owner: Southern California Edison Co. Contractor: Macco Corp., Clearwater, Cal.

28 feet of water in fine, inert material with silt deposits.
Open water bound the excavation on two sides.

When you have water
on your mind...
PUT MORETRENCH
ON THE JOB!

You can see at a glance what short
work a MORETRENCH WELL-
POINT SYSTEM made of this
major pumping problem.

MORETRENCH CORPORATION

90 West St.
New York 6

3037 S. Christiana Ave.
Chicago 23, Illinois

7701 Interbay Blvd.
Tampa 9, Florida

315 W. 25th St.
Houston 8, Texas

Rockaway
New Jersey

Check your present scraper against
these modern **LAPLANT-CHOATE**
features

SCRAPER EVALUATION CHART

SCRAPER EVALUATION CHART

Design features which affect production ability—loadability—haulability—
readability—of scrapers.

	Points	LPC	Score Your Scraper
1. a. Curved Bowl Bottom b. Flat Bowl Bottom	10 5	10	
2. a. Offset Cutting Edge b. Straight Cutting Edge	10 5	10	
3. a. Low Center of Gravity b. High Center of Gravity	10 5	10	
4. a. Open Top Bowl b. Obstructed Bowl Top a. Weight Distribution 45% front 55% rear	10 5	10	
5. b. Weight Distribution Otherwise Weight empty a. Under 5% variation b. 5% to 15% variation c. Over 15% variation	10 6 2	10	
*6. 7. a. Interchangeable Tires—Front & Rear b. Non-interchangeable Tires	10 5	10	
8. a. Positive Forced Ejection b. Gravity Dump	10 5	10	
**9. a. High Apron Lift b. Medium Apron Lift c. Low Apron Lift	10 7 2	10	
General Maintenance & Serviceability Characteristics a. Superior b. Average c. Inferior	10 6 2	10	
Total			100
**Height of Apron Lift			
Under 70"			
Medium			
Low			

Capacity Struck Yards	*Average Weight 8 Manufacturers
12 - 15	21,950
7 - 9	15,143
5 - 7	11,020

**Height of Apron Lift	Low
Medium	Under 70"
70" - 100"	Under 60"
40" - 90"	Under 50"



Here's an easy way to see if you are getting all possible profit from your earthmoving jobs. Maybe you're losing money with obsolete equipment using a good tractor to haul ten yards when it can handle fourteen.

Modernize now with LaPlant-Choate scrapers! Their profit-earning capacity is unmatched! They

get bigger loads faster and easier in all kinds of material. They will carry a smooth, even spread in high gear. Savings in tractor and scraper maintenance also add to your profit. Your nearest LPC distributor can give you complete details. Ask for Bulletin A-1143-A. LaPlant-Choate Manufacturing Co., Inc., Cedar Rapids, Iowa; 1022 77th Ave., Oakland, California.

LAPLANT CHOATE

FOR LOWEST POSSIBLE COST
PER YARD...PER JOB...PER YEAR

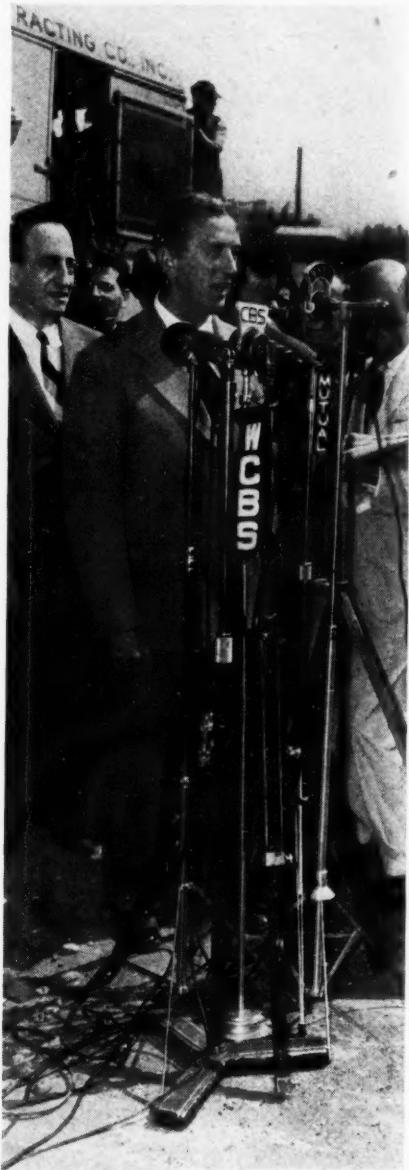
Present and Accounted For...A PAGE OF PERSONALITIES



WILLIAM F. RYAN has been serving since early this year as engineering manager of Stone & Webster Engineering Corp., Boston, Mass.



WILLIAM F. CHILDS, JR., chief engineer Maryland State Roads Commission, is serving this year as president of Association of Highway Officials of North Atlantic States.



Mal Gurian Photo



J. R. SWEITZER, St. Paul, Minn., contractor and president of Associated General Contractors of Minnesota, has received "Minneapolis Star and Tribune" award for leadership in Minnesota.

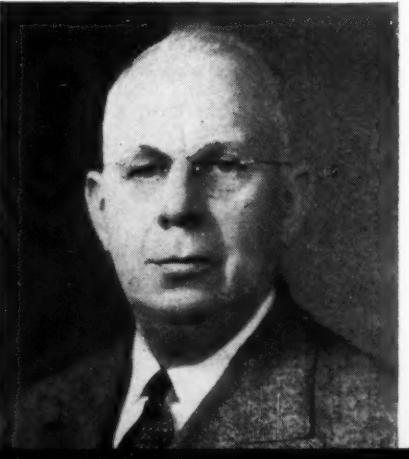


H. E. ROBBINS has been named director of U.S. Bureau of Reclamation Region 5 comprising Texas, Oklahoma, most of New Mexico and parts of Kansas and Colorado. His headquarters will be at Amarillo, Tex.

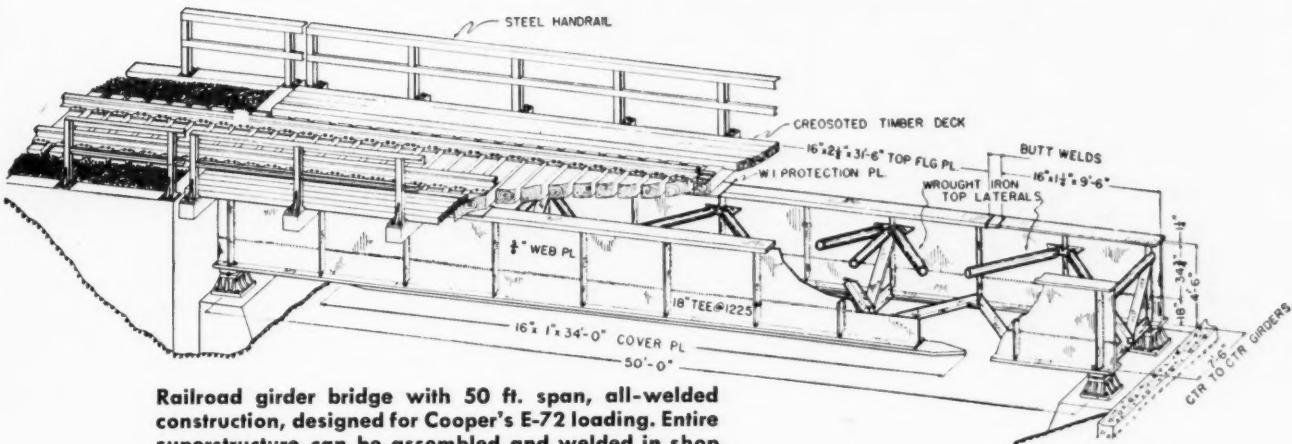
SPEAKING at ground-breaking ceremonies for United Nations headquarters at New York City Aug. 14 is JAMES M. SLATTERY, head of Slattery Contracting Co., Inc., who has contract for excavation of big site along East River.

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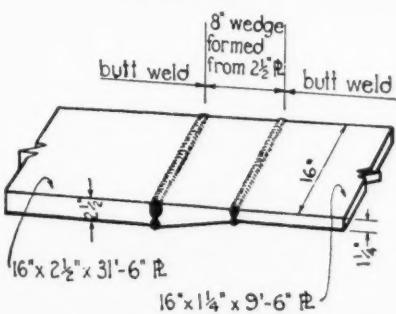
CHAIRMEN OF THREE CONSTRUCTION DIVISIONS of Associated General Contractors of America this year are below: (left) Building Contractors' Division, A. L. ATHERTON, Atherton Construction Co., Seattle, Wash.; (center) Highway Contractors' Division, GEORGE C. KOSS, Koss Construction Co.; (right) Heavy Construction and Railroad Contractors' Division, SAMUEL L. FULLER, John F. Casey Co., Pittsburgh, Pa.



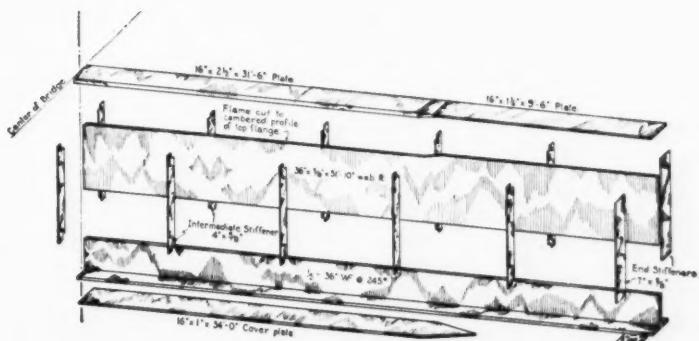
How to build an open deck railroad girder bridge



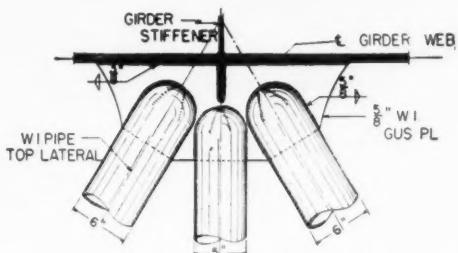
Railroad girder bridge with 50 ft. span, all-welded construction, designed for Cooper's E-72 loading. Entire superstructure can be assembled and welded in shop for shipment to site, minimizing interruption of traffic.



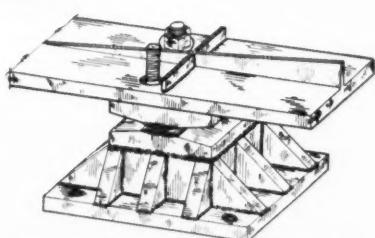
Tapered section inserted near ends of top flange for smooth transition of stresses.



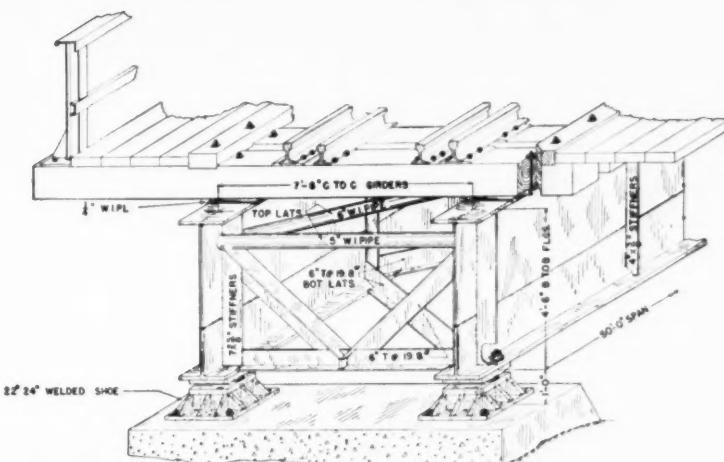
Bottom flanges are made from half of 36" WF 245 lb. beam, web split down middle, flange reinforced with 16" x 1" plate as shown.



Top lateral diagonals are wrought iron pipe, ends slotted and welded to gusset plates. Ends are "orange peeled" and welded tight to seal them from moisture.



Pedestal shoe consists of series of flame-cut crossed web plates. Bearing surfaces are made from weld deposit of chrome nickel steel.

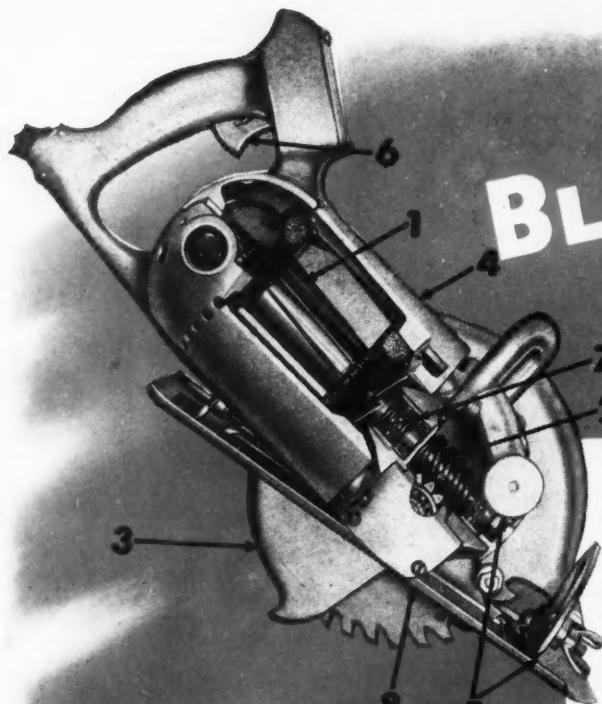


Bottom laterals are made from 6" x 6" tee sections, joined by butt welding horizontal legs to edges of girder flange and fillet welding vertical legs to girder web. This view shows end of span.

The above is published by LINCOLN ELECTRIC in the interests of progress.

Complete details on this bridge are given in a current series of Structural Studies Plates. Free to structural engineers. Write on your letterhead to The Lincoln Electric Company, Dept. 126, Cleveland 1, Ohio.

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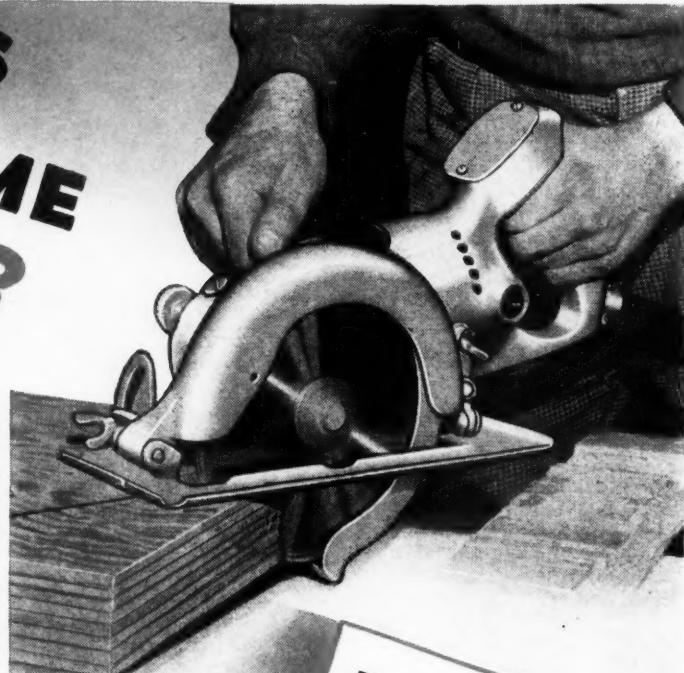
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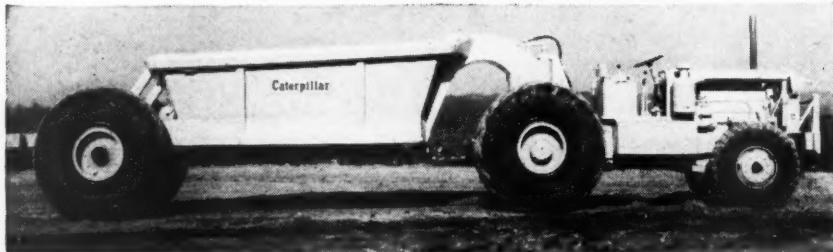
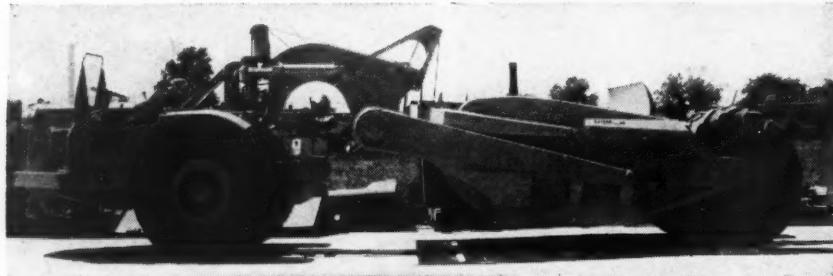


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CONSTRUCTION EQUIPMENT NEWS

OCTOBER 1948 REVIEW of Construction Machinery and Materials

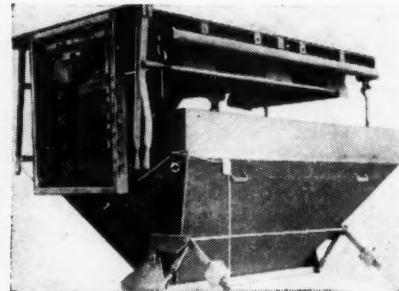


NEW CATERPILLAR EQUIPMENT—Pictured above are two of the ten additions about to be made to "Caterpillar" production. They are: (top photo) the diesel DW21 wheel-type tractor equipped with the No. 21 scrapers; and, at bottoms the diesel DW20 wheel-type tractor equipped with the W20 wagon. Both these earthmoving units are powered by a new diesel engine, a 6-cylinder power plant providing 225 hp. at 2,000 rpm. governed full load speed. All working speeds are controlled

through a foot throttle, while the governor controls speeds at low idle and prevents over-speeding of the engine. Each unit has the Caterpillar constant mesh spur and helical gear transmission, pump lubricated, and a 16-in. dia. double-plate clutch with semi-metallic friction surfaces, foot operated. The bottom dump W20 wagon has a truck capacity of 14 cu. yd. and a heaped capacity of 22 cu. yd.—Caterpillar Tractor Co., Peoria 8, Ill.

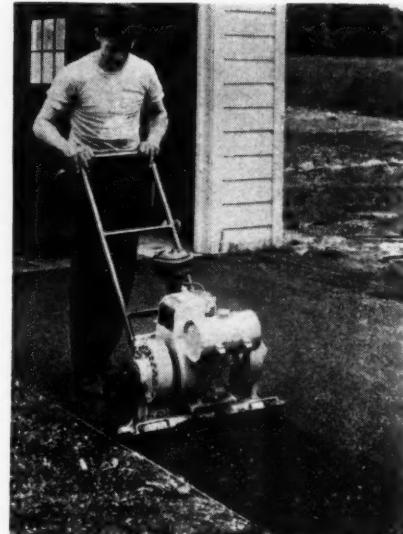


CONVEYOR—A standard conveyor 30 to 120 ft. long is furnished in 5-ft. increments. Belt widths are 18, 24, and 30 in. In selecting any conveyor, only information necessary is type and amount of material to be handled in a given time and distance and height to be moved. Rated capacity is handled at 300 ft. per min. and maximum slope of 18 deg. Conveyor belt, motor mounting, V-belt drive and motor will be provided along with the standard items when specified.—Pioneer Engineering Works Inc., Minneapolis 13, Minn.



HI - SPEED BATCHER—Designed for batching all aggregate materials on a single scale, the Hi-Speed batcher is generally used in connection with tandem bins. One unit beam box contains scale levers, weigh beams and indicator, and built-in damper on sensitive indicator reduces scale beam oscillation. Batcher has minimum height and wide bin openings to accommodate extra wide fill valves for high speed operation.—C. S. Johnson Co., Champaign, Ill.

JACK SUPPORT—Designed to replace wooden wedge supports and have upright or inverted use, an aluminum alloy jack support, JS-1, weighs only 8 1/4 lb. The jack is 15 in. high and has a 7x10-in. platform.—Templeton, Kenly & Co., 1020 S. Central Ave., Chicago 44, Ill.



BITUMINOUS IMPACTOR—Tamping machine powered by Wisconsin gasoline engine, weighing 230 lb., consolidates bituminous paving and patch material. Strikes 1,750-2,000 blows while traveling over a 35- to 42-ft. strip 25 in. wide. Can finish flush to curbs or car tracks. Recommended for widening work, street and road repairs, driveways and parking lots. Travels forward under its own power. Impact and finishing shoe is heated by engine exhaust.—Wayer Impactor, Inc., 12 N. 3rd St., Columbus 15, Ohio.

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Photos show a PERFECTION Model 254 heavy-duty Dump Body; capacity 5 yds. Equipped with PERFECTION No. 725 Hoist. Mounted on 1948 Ford truck.



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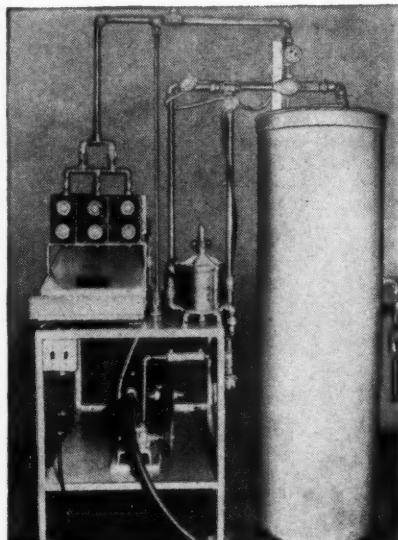
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LIGHTWEIGHT WHEELBARROW

—Of 3½-cu.ft. capacity, body of sturdy wheelbarrow is made of heavy-gage steel with corners overlapped and welded to provide a double thickness on all four corners. Equipped with 4.00x8.00 pneumatic tire for easy rolling. Wooden handles are bolted to tray. Extra heavy dump-bar extends in front of wheel. —Vanco Products, Inc., 130 S. Weber St., Colorado Springs, Colo.

TOWING WINCH—Designed to meet increased horsepower of the "Caterpillar" D2 tractor, the D2N towing winch is direct-gear, reversible and operates in complete oil bath lubrication. With a power take-off available, the D2N has a line pull up to 13,400 lb. and improved handling gear design.—Hyster Co., Portland 8, Ore. or Peoria 1, Ill.



HYDROZONE WATER PURIFIER

This 600-gph. water purification plant is self-sufficient as no adjustments are needed to provide the purification dosage. All that is required to operate it is to connect 220 v., 60 cycle, single or 3-phase current to the operating switch on the ozonator panel, drop the suction line to the pump into the stream, cistern, tank or raw water line and throw the switch. Ozone is the purifying medium. Manufacturer claims this unit will remove all chlorine, sulphur and phenol tastes and odors and deliver pure, clear, sparkling and healthful water no matter how contaminated the source.—Hydrozone Corporation of America, 1 Montgomery Street, Jersey City, N. J.

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We trust the BIG jobs to Tulsa Winch

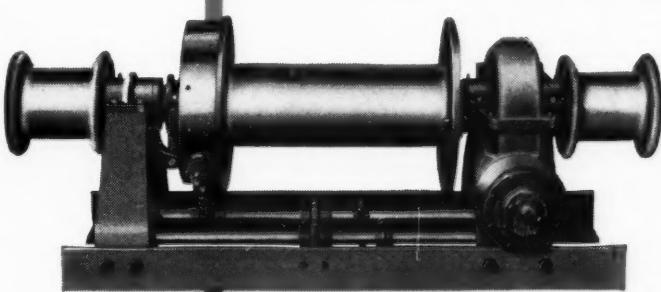
A steel erection firm's superintendent reports: "We trust the BIG jobs to Tulsa Winches, because we know they are safe, and will HOLD THE LOAD! Many times our men are forced to work directly under the load. They'd rather work with

Tulsa Winch because they're sure that the worm brake will HOLD!"

Whatever the job, big or small, there's a Tulsa Winch for your truck or tractor. Tulsa Winches are manufactured with precision and care, and will give you years of trouble-free service. Tulsa Winches are SAFE, due to the specially-constructed gear-box, and the protection afforded by the automatic worm brake.

Write Tulsa Winch, Division of Vickers, Inc., 815 E. First, Tulsa, Oklahoma, for information and literature.

Winches available for trucks $\frac{1}{2}$ -ton up to 5-ton and larger.



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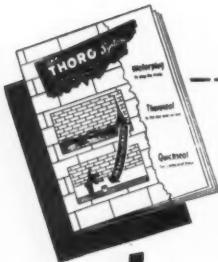
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(8) Workmen are now applying WHITE THOROSEAL to upper portion of wall and over the cracked area at point (E) and over the reinforcing point at point (F) entirely seal the wall against any further entrance of water. A seep hole can be noticed at point (F) which permits excess water to drain from wall while applications are being made.



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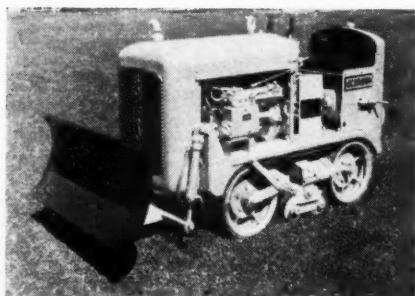
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TRENCHER—Hooked up to a Ferguson tractor, as illustrated, Everett trencher digs ditch 42 in. deep and 12 to 18 in. wide. Driven from power take-off of tractor, and raised and lowered by tractor's hydraulic control system. Has cast steel digging buckets with adjustable clearance teeth. Belt delivers excavated earth to side of trench. Can be moved from job to job under its own power or on trailer. Maneuvers quickly into working position. Has special transmission placed in its own gear box to provide for speed reduction necessary.—Everett Mfg. Co., Inc., Phoenix, Arizona.

HEAT GENERATOR DISPENSER—A portable, steam or hot water generator and dispenser is useful for thawing out materials; creating suitable temperatures for painting, pouring concrete and various other purposes. Requiring no regular attendant, the Eco-Temp unit needs only a 110-v., 60 cycle, single phase outlet, a smoke pipe opening and a water hose. Tank holds 30 gal. of No. 2 fuel oil and burns only 1½ gal. per hr. Eco-Temp comes mounted on rubber-tired casters.—Arthur C. Baumann, 7011-21 Grays Ave., Philadelphia 42, Pa.



HYDRAULIC BACKFILL BLADE—Recent addition to Schramm Model 60 crawler type compressor is hydraulically operated backfill blade operated by pressure supplied by hydraulic pump. Two hydraulically operated cylinders mounted on track guards produce blade travel of 14 in. above ground and 11 in. below ground level. Designed for use in backfilling ditches in conjunction with a pneumatic backfill tamper, and for general light grading.—Schramm, Inc., West Chester, Pa.

Only Dodge Builds "Job-Rated" Trucks



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"Job-Rated" TO SAVE MONEY ...

You'll save money with a truck that's built to fit your job. Any truck that's too big for its job, will waste gas and oil. Or, if it's too small it won't stand up . . . maintenance costs will be excessive. There's no need to drive expensive "misfits." Just see your Dodge dealer. Tell him what you haul . . . the weight of your loads . . . and your hauling conditions. He will recommend the right "Job-Rated" truck for your job.

"Job-Rated" TO SAVE TIME ...

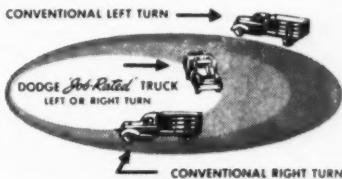
Dodge "Job-Rated" trucks save valuable time, too, simply by keeping out of the repair shop. They save time, because each truck is engineered with exactly the right one of 7 different truck engines. Each one has exactly the right clutch, transmission, rear axle and gear ratio to haul a specific load, over specific roads, with time-and money-saving efficiency.

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Naturally, a truck that fits the job . . . a truck "Job-Rated" with exactly the right units, from engine to rear axle . . . will last longer! This means lower upkeep costs. It also means on-the-job dependability and satisfaction. Ask your Dodge dealer to show you why the right "Job-Rated" truck can save money, save time, and last longer . . . on your hauling job!

You'll profit from these NEW features, too!

New "cross-steering," with shorter wheelbases that accommodate full-size bodies, enable you to turn in much smaller circles. You can park, back into alleys or up to loading platforms with much greater ease.



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New "Pilot-House" cabs, with nearly 200 square inches more windshield glass area, give tremendously increased vision . . . and safety!

For the location of the Dodge dealer in your community, consult the yellow pages of your local telephone directory

DODGE "Job-Rated" TRUCKS



CLAY SPADE—Designed for easy holding and reduction of digging costs, Le Roi 31 clay spade weighs only 18 lb., and is short—19 in. in length. Built-in oiling system includes large reservoir in handle from which oil is metered into live air stream and carried to every working part. Cylinder, handle and retainer have been forged to form a tough armor-clad, hard-working tool. Spacer and chuck bushings are renewable.—Le Roi Co., 1706 S. 68th St., Milwaukee, 14, Wis.

ALUMINUM NAILS—For the building industry aluminum nails are being made in six types and sixteen different sizes. These include common nails, roofing nails, special roofing nails, barbed, shingle nails, plaster-board nails and felt paper nails. The common nails include the following sizes: 4, 6, 8, 10 and 16 d. The roofing nails, all with 7/16 in. heads, come in lengths from $\frac{1}{8}$ to $2\frac{1}{2}$ in. The special roofing nail is supplied with a barbed 1 $\frac{3}{4}$ -in. shank with a 7/16-in. head. In addition to being highly resistant to corrosion and stain, aluminum nails weigh only 1/3 as much as steel nails, so that the buyer gets three times as many nails per pound. When used with wood siding there is claimed to be no danger of rusting of nail heads with subsequent discoloration of paint jobs on exterior walls.—Reynolds Metals Co., 2500 S. Third St., Louisville, Ky.

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Ideal for construction work, the HS is one of a complete line. Service it in off seasons and it requires no further care.

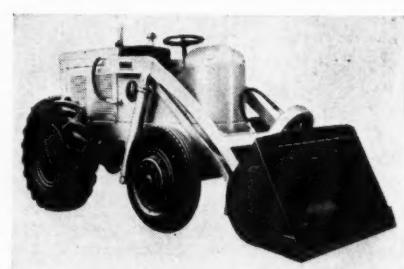
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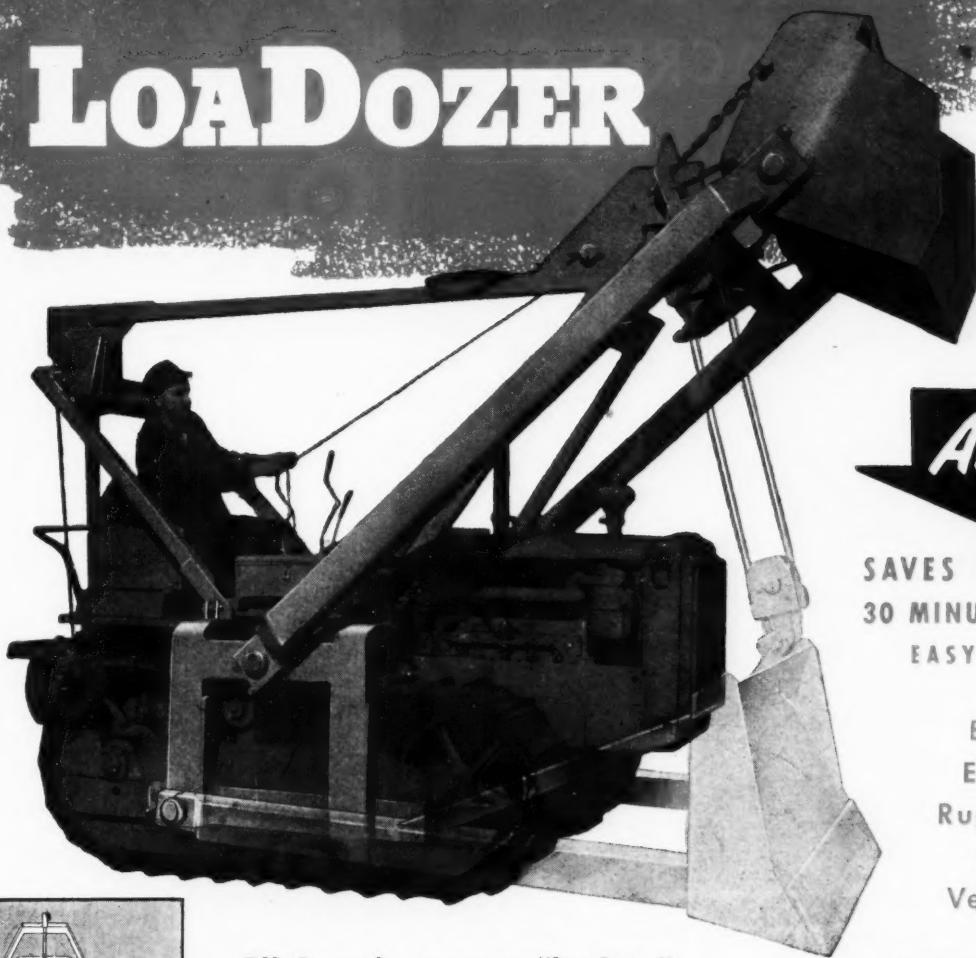
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SAVES ONE TRACTOR
30 MINUTE CHANGE-OVER
EASY OPERATION

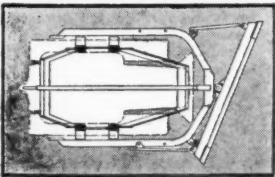
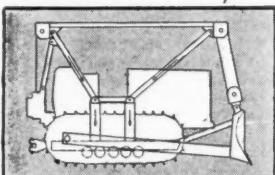
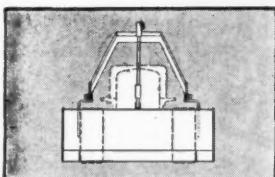
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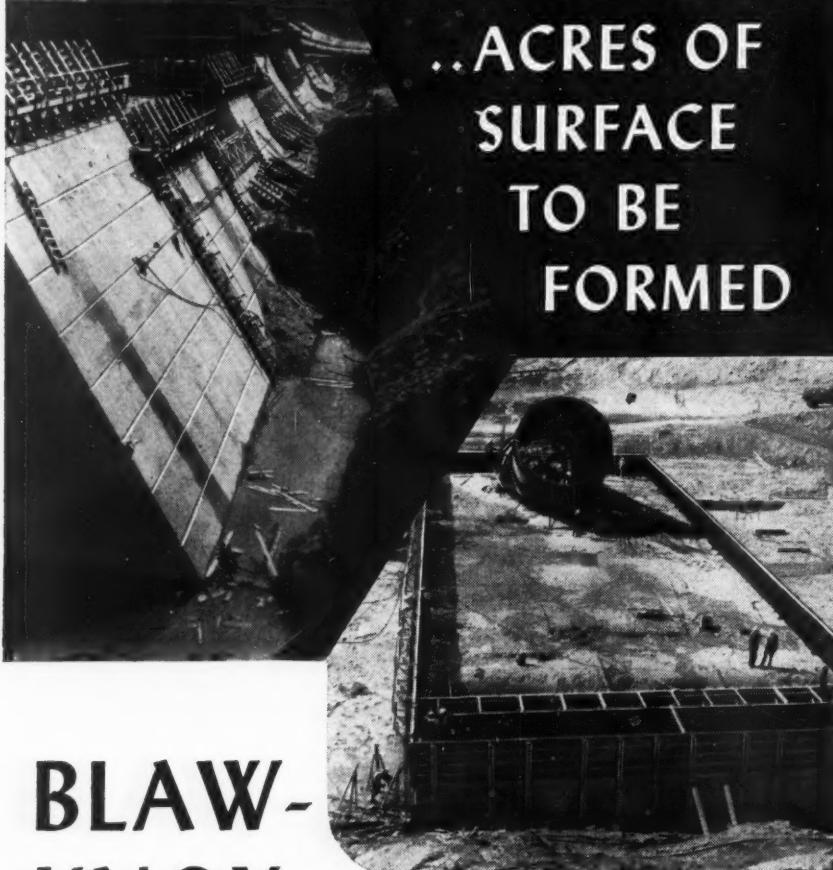
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Construction Methods



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Proved record
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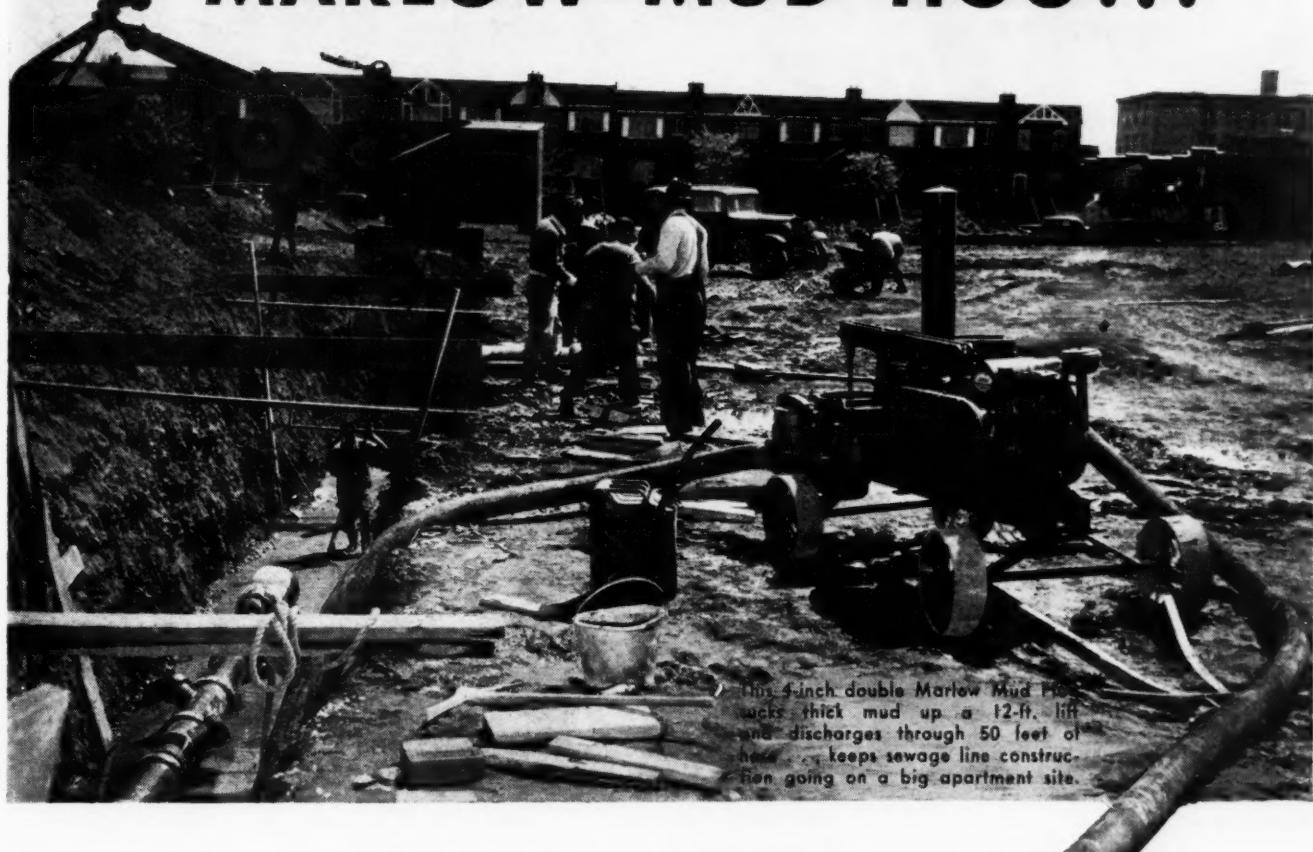
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This 4-inch double Marlow Mud Hog picks up a 12-ft. lift and discharges through 50 feet of hose . . . keeps sewage line construction going on a big apartment site.

...the construction man's

ACE IN THE HOLE

There's no costly work stoppage from mud or trash-filled water when you rely on the famous Marlow Mud Hog Diaphragm Pump.

Mud, sand, grit, muck, slime, gumbo—liquids filled with debris and nearly heavy and solid enough to shovel—all are gulped up by the amazing pumping power of this unrivaled dirty-work pump. It's a construction man's protection against profit-shrinkage . . . his ace in the hole when confronted with dirty, messy liquids and tough pumping situations that threaten to bog down the entire job.

Marlow engineers designed this staunch pump to do its work well. The Mud Hog's patented ball valves are practically clog-proof; the flow design permits all liquid to pass under the diaphragm, not over it, to avoid unnecessary wear and cutting hazards. And indicative of the pump's great strength, not a single Marlow Mud Hog walking beam has ever been known to break.

More Mud Hog facts are available in the new bulletin C48, which also describes the big line of Marlow Self-Priming Centrifugal pumps for construction.

FREE

New bulletin C48, "Marlow Pumps for Construction." Every construction man should have a copy. Send for it.



**MARLOW PUMPS RIDGEWOOD,
NEW JERSEY**

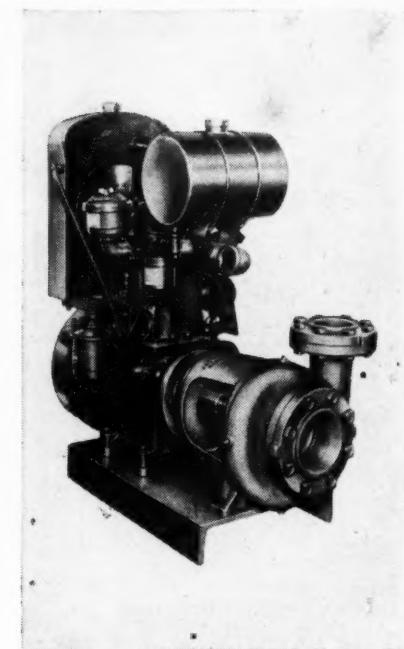
Manufacturers of the World's Largest Line of Construction Pumps

More Briggs & Stratton Air-Cooled Engines than ever before

Our capacity to produce Briggs & Stratton 4-cycle, air-cooled, gasoline engines is now at an all-time high.

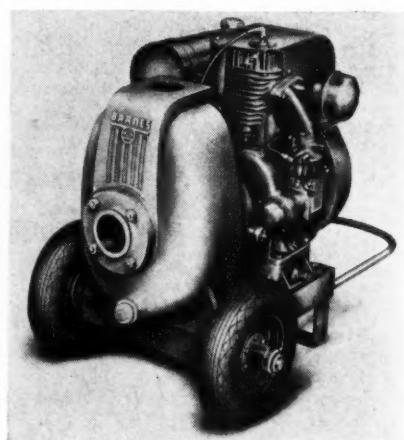
More gasoline-powered machinery, appliances and equipment are being powered by Briggs & Stratton engines than ever before.

BRIGGS & STRATTON CORPORATION
Milwaukee 1, Wisconsin, U. S. A.



DIESEL-DRIVEN PUMP — Several 6- and 8-hp. pumps are now available powered by single-cylinder diesel engines equipped with electric starters. The diesel can be connected to the pump either directly or by a belt, depending on water depth or pressure required.—Jacuzzi Bros., Inc., Richmond, Calif., or St. Louis, Mo.

HIGH-TOWER SCAFFOLDING — Tubular steel construction permits adjustability and flexibility and requires less material in erecting high-tower scaffolding. Any desired height is attained with rigidity and safety. Joints are electrically welded.—Bil-Jax Inc., Archbold, Ohio.



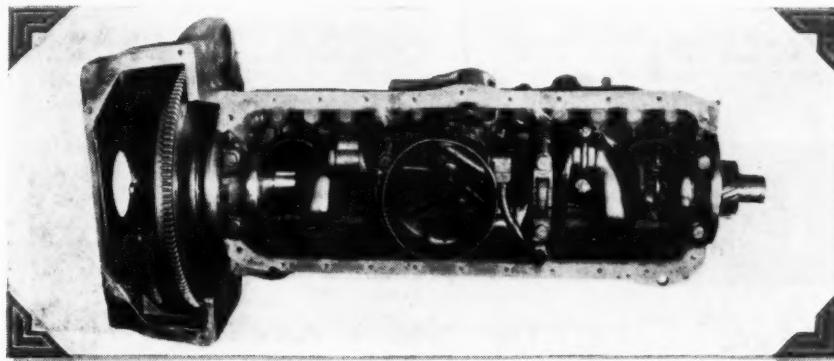
CENTRIFUGAL PUMP — New feature is high-speed, positive and non-clogging priming. Line as manufactured includes pumps with capacities ranging from 3,000 to 90,000 g.p.h. Free-passage vent located adjacent to periphery of impeller achieves speedy self-priming with as little as one-third normal water level in pump body.—Barnes Mfg. Co., Mansfield, Ohio.

STANDARD ENGINEER'S REPORT

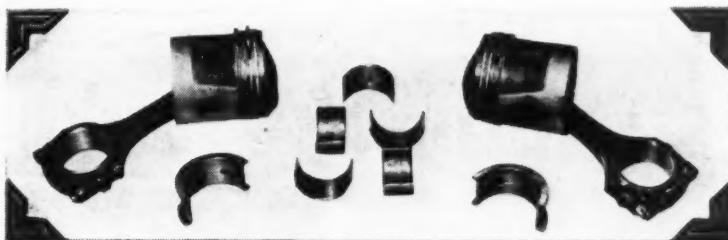


TOUGHEST MOUNTAIN SERVICE PROVES RPM HEAVY DUTY KEEPES TRUCK AND BUS ENGINES CLEAN

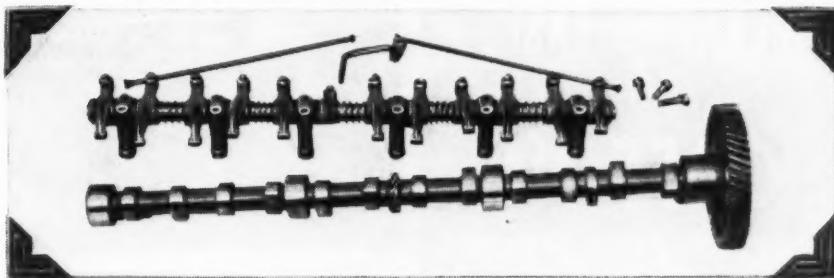
When this engine was pulled out of service for inspection, and the photographs were taken, it had operated on RPM Heavy Duty Motor Oil continuously for 45,000 miles—in service that is about as hard on equipment as any in the country. It is one of 21 units used on a mountain bus and freight run. They climb to a 5000-foot altitude in 15 miles without a stop. Even with 6-bladed fans, pressure-lubricated timing gears and 10-speed transmissions, crankcase temperatures soar above 240 degrees F.



As the pictures at right and above show, the crankshaft, bearings, pistons and rings from the engine were exceptionally clean. RPM Heavy Duty Motor Oil withstands the highest operating temperatures . . . sticks to the hot spots ordinary oils leave bare.



The camshaft was free from lacquer. Pushrods, timing gears and other parts showed minimum wear. RPM Heavy Duty Motor Oil resists oxidation, cleans engines of lacquer and maintains a tough lubricating film. It does this because of inherent properties of its selected base stocks and special compounds.



REMARKS: Many oils, competitive to RPM Heavy Duty Motor Oil, have been tested by Mountain Auto Line in their regular service. Tests have been made in all seasons of the year with atmospheric temperatures ranging from zero to 100°F. above zero in the shade. RPM Heavy Duty Motor Oil is the only oil used that meets every requirement of their engines and prevents clogging with lacquer.

STANDARD TECHNICAL SERVICE conducted and reported this test: If you have a lubrication or fuel problem, your Standard Fuel and Lubricant Engineer or Representative will give you expert help; or write Standard of California, 225 Bush Street, San Francisco 20.

STANDARD OF CALIFORNIA • San Francisco, Calif.
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Underslung Trailers for Transporting Con- struction Equipment.



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Extra SAFETY... Extra DURABILITY

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SAFETY-PULL HOISTS

Check these features that give longer hoist life, greater ease of operation—

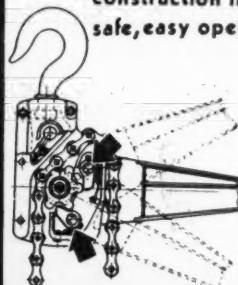
- Hooks of drop forged heat treated steel
- Reversible handle permits operation in any position
- "Safety Load" handle—bends before other parts will break
- Each model pre-tested to 100% overload
- Coffing exclusive dual ratchet and pawl assembly for maximum safety
- Nine models in capacities from $\frac{3}{4}$ to 15 tons

Write for Bulletin RL-3

COFFING HOIST CO.
DANVILLE • ILLINOIS

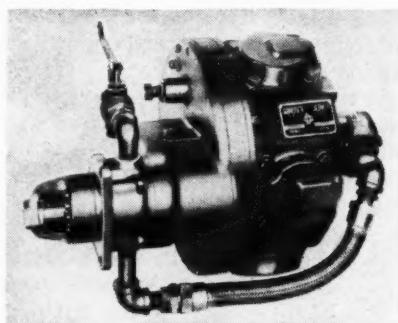
RATCHET LEVER HOISTS • LOAD BINDERS • SPUR GEAR HOISTS • ELECTRIC HOISTS • DIFFERENTIAL HOISTS TROLLEYS

Sturdy, simple pawl construction insures safe, easy operation.



DRAGLINE BUCKET — More efficient operation is claimed for the recently announced Short Cycle dragline bucket. It is designed with the center of gravity slightly to the rear of the normal position. Thus, the bucket can be hoisted sooner without spilling and this results in an average time saving of 29 percent per cycle. Sizes available range from $1\frac{1}{4}$ to 12 cu. yd.—**Berner Engineering Co.**, 1955 Lafayette St., Santa Clara, Calif.

DRAFTING MACHINE—An "Equi-pose" mechanism which insures accurate alignment even when the drawing board is inclined as much as 20 deg. is an important feature of the standard and civil engineer's drafting machines. Included in the new design are a revised protractor head assembly, a relocated base line setting device for locking the protractor index point to any angle, and an increased distance between clamp screws, holding drafter securely to board.—**Charles Bruning Co., Inc.**, 4754 Montrose Ave., Chicago 41, Ill.



AIR STARTERS—Five sizes of air starters for gas, gasoline or diesel engines—from 3 to 15 hp. on 100 lb. air pressure—combine high torque and elimination of battery maintenance. When the air valve is open, an air actuated starter pinion automatically engages the ring gear just before the starter begins to crank the engine.—**Gardner-Denver Co.**, Quincy, Ill.



Heap BIG Loads

**That's why Heiliner Scrapers
save earthmoving money for you**

As you can see, the Heiliner gives you heaping loads. Its 22-mpm speed and hydro-steering let you move these loads where you want them — and in a hurry.

Here are a few more reasons why you can move more dirt with a Heiliner, in less time, for less money:

Lugging power — you always have plenty of it, thanks to an overall gear reduction of 153 to 1.

Heaped loads — these larger loads are made possible by Heil's open-top scraper design.

Fast bonus-loading — Heil's bowl design practically eliminates pockets and voids.

Greater digging ability — the weight of the scraper falls on the cutting blade, giving you better penetration.

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Passenger-car steering — the patented Hydro-Steer lets you turn the Heiliner in a 22-ft. radius with little effort.

The Heiliner is the answer to lower earthmoving costs. Get all the details from your International Industrial Power Distributor. Write us for latest literature.

R-100

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OC Type (Open-Top) Scraper



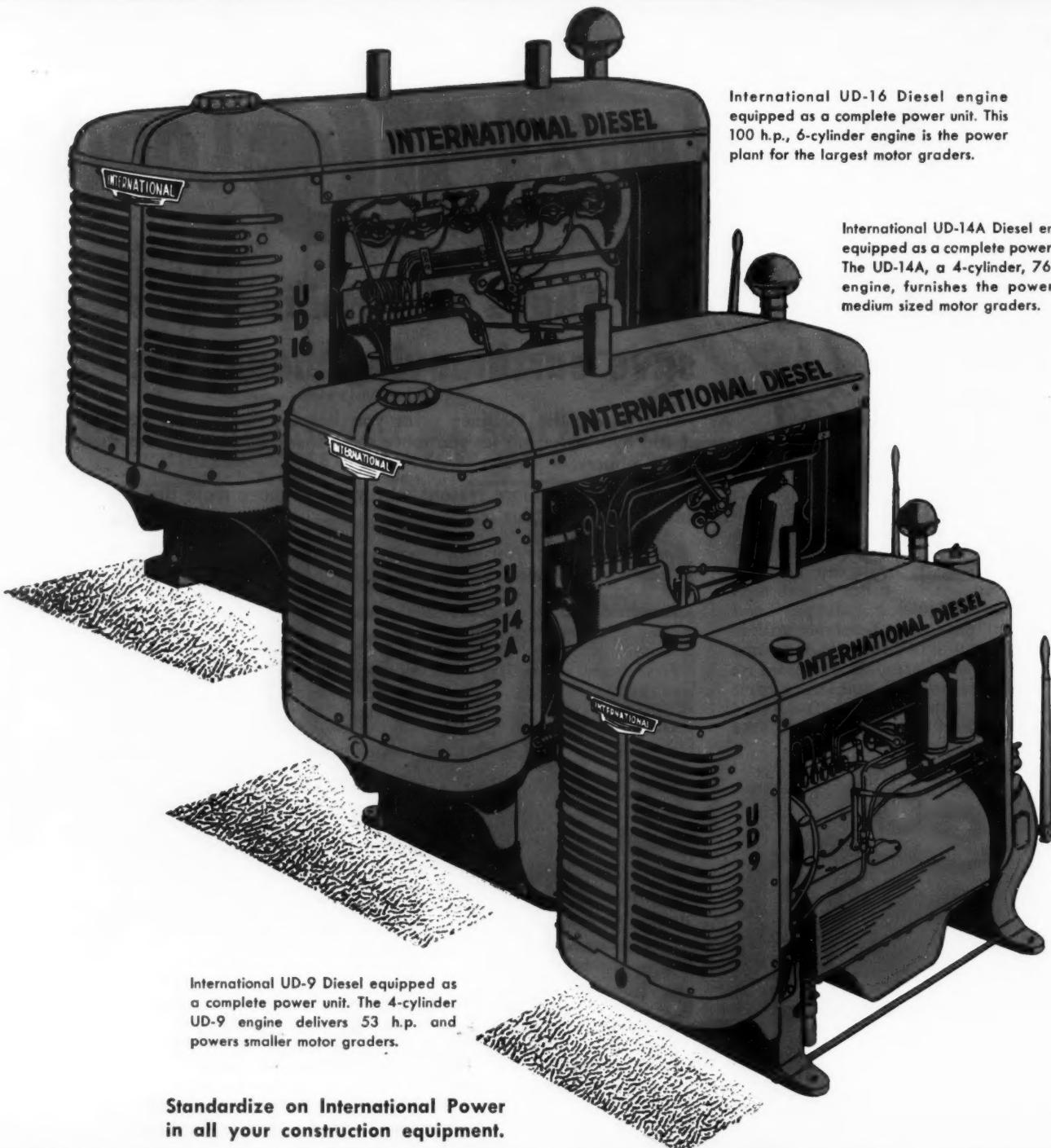
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Give You Grader Power in Your Program



International UD-16 Diesel engine equipped as a complete power unit. This 100 h.p., 6-cylinder engine is the power plant for the largest motor graders.

International UD-14A Diesel engine equipped as a complete power unit. The UD-14A, a 4-cylinder, 76 h.p. engine, furnishes the power for medium sized motor graders.

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Standardize on International Power in all your construction equipment.

INTERNATIONAL Industrial

engine
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DIESELS

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For more work done and bigger profits in your pocket, choose motor graders powered by International Diesel engines.

International Diesels give you exclusive, in-built, gasoline-conversion starting — they start in any weather as easily as your car — to get your motor grader on the job quickly. The International Diesel fuel-injection system leads the field in advanced design. A simple, compact fuel pump with a built-in governor and torque control device gives you precision metering of fuel and instant load-grabbing ability with minimum fuel oil consumption. These and dozens of other features make International Diesels tops in productive performance.

Let your International Industrial Power Distributor show you how International Diesels add efficiency to motor grader performance and pay off in production. Here, again, you'll find International Power the essential specification in your program for paydirt.

Industrial Power Division

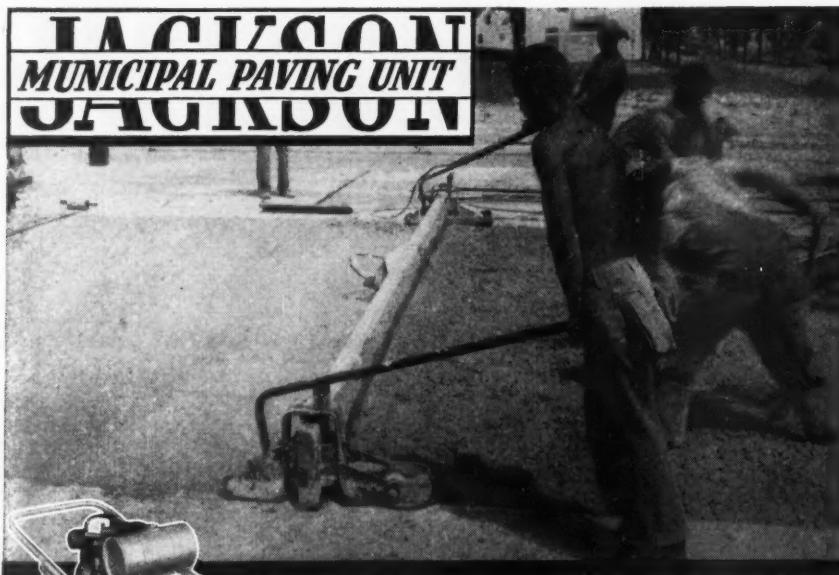
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Power plant furnished with unit: 1.25 KVA, generates both single and 3-phase 60 cycle AC. Also suitable for operating lights, vibrators, tools, etc.

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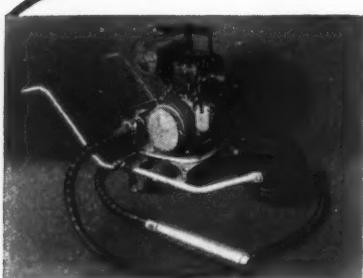
**Places perfectly
UPWARDS OF 65 Cu. Yds.
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- ✓ Will undercut at the side forms; strike off to crown, both regular and inverted; roll back for second passes.
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CONCRETE CONSTRUCTION

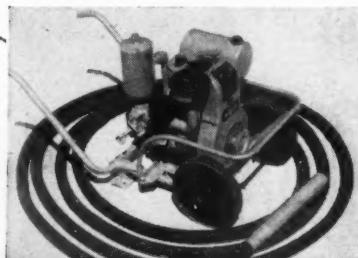
See them at your Jackson Distributor (name on request) or tell us the nature of the job and we will send descriptive literature describing the vibrator that will handle the job to best advantage.



Model FS-6A. Flexible Shaft, Gas-engine drive. Available with 3 heads for thick or thin sections. Flexible shafting in 7' to 14' lengths up to 28', grinding and other attachments.



Model FS-7A. Flexible Shaft Electric. Ideal for decks, thin walls, and with short shafts for spud work.



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PORTABLE POWER HACK SAW—
A patented sawing action eliminating use of weight and a work holding vise (capacity 3x3 in.) are features of Hand-I-Hack, a lightweight portable power hack saw. Operated on 110 v., a.c., sawing can be done in any position. Vise is swivel-mounted and calibrated for mitre cutting.—Lipe-Rollway Corp., Syracuse, N. Y.

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CONSTRUCTION**

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Steel Contractors
Incorporated**

**BUILDINGS BRIDGES
TOWERS TANKS**

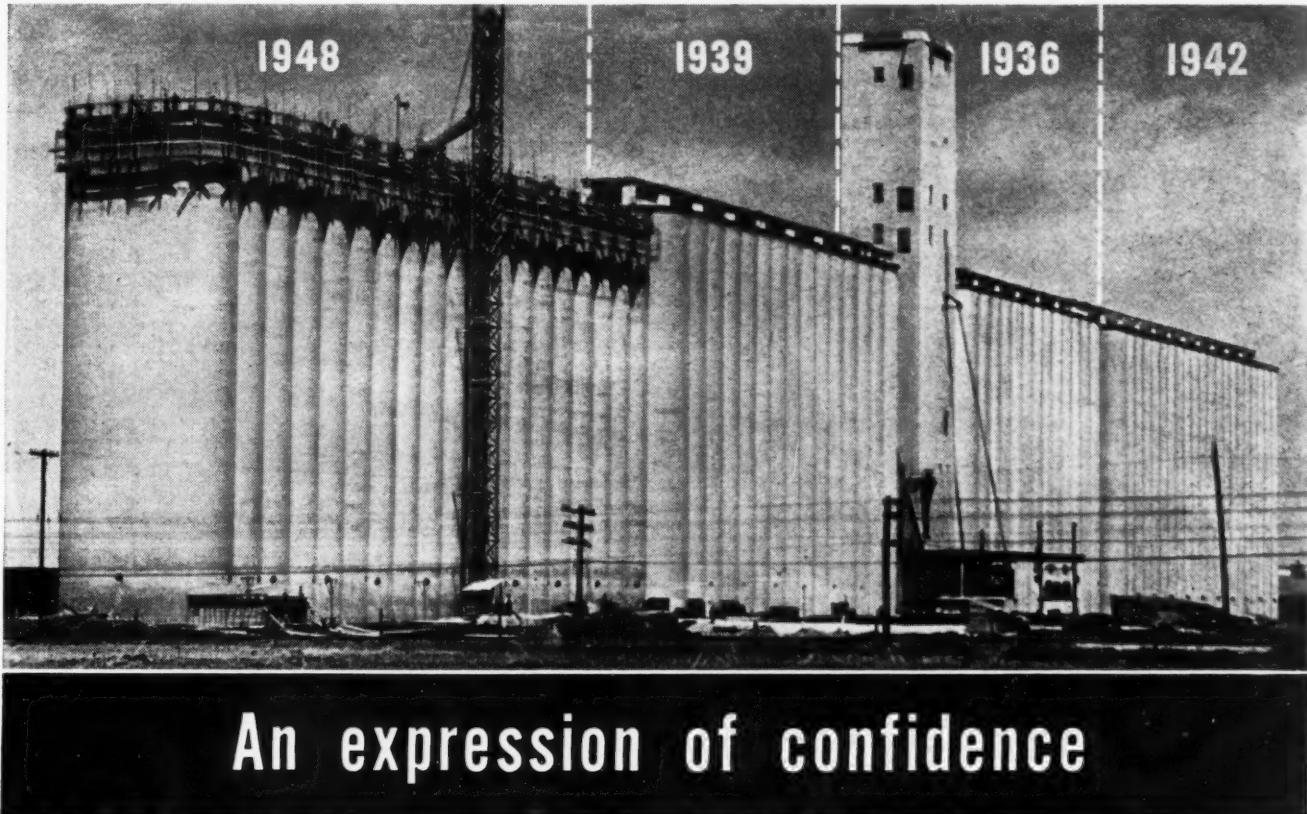
**STEEL FABRICATORS
ERECTORS**

your inquiries will warrant
our prompt attention

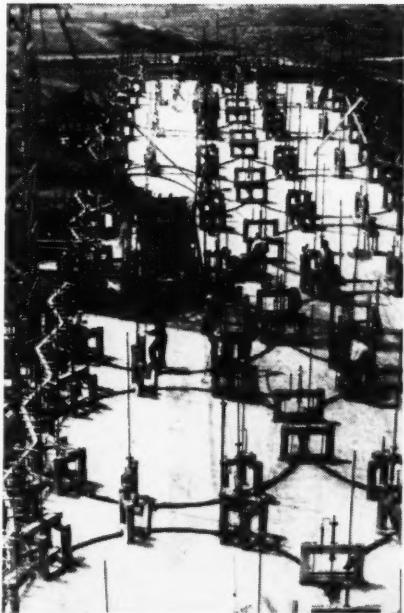
**103 PARK AVENUE
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MURRAY HILL 5-0166-0167-0168

• 3,500,000-bushel grain elevator of Farmers Co-operative Commission Company, Hutchinson, Kansas. **Contractors**, Chalmers & Borton, Hutchinson, Kansas.



An expression of confidence



In 1936, the Farmers Co-operative Commission Company of Hutchinson built the first unit of what was to become the largest grain elevator in western Kansas. Additional units were built in 1939, 1942 and 1948*. . . all four by the same contractors . . . all with Lehigh Cements.

In the course of business, there is nothing more rewarding than the relationship with a customer who returns time after time. It is the highest expression of confidence.

Whatever your cement requirements, there are Lehigh Cements to fit them. Our Service Department will be glad to help you with your specific problems.

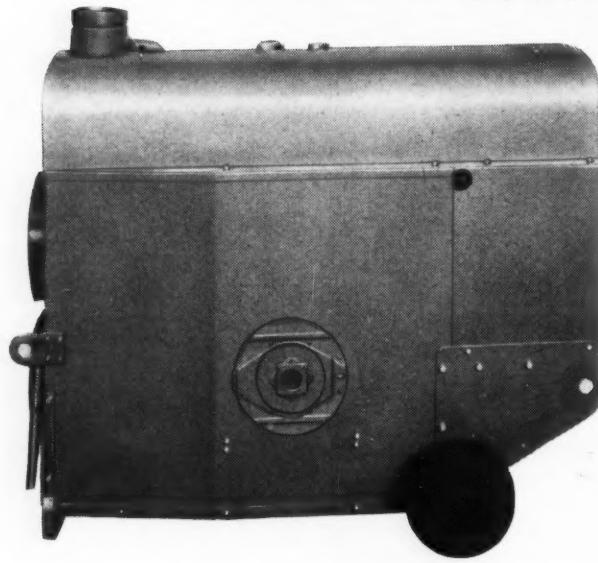
*In the latest addition, a million-bushel unit completed this year, Lehigh Air-Entraining Cement was used . . . the most modern development in cement manufacture.

LEHIGH PORTLAND CEMENT COMPANY
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THE NEW HERMAN NELSON De Luxe Model Portable Heater

- Provides Quick, Clean, Safe Heat — without smoke, soot or open flame.
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Full 250,000 BTU per hour capacity — enough to heat three ordinary 5-room houses!

Burns range oil, kerosene or prime white distillate — costs less than 39c per hour!

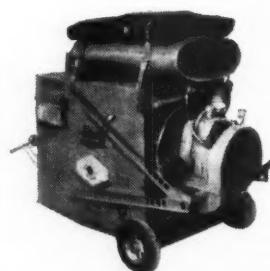
Electric motor powered; 115-230 volt. 60 cycle, single phase.

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Two 12" dia. x 12' long, extendable hot air ducts.

Streamlined appearance. Two-tone finish.

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The original Herman Nelson, gasoline burning, gasoline engine powered, Portable (Ground) Heater. For areas lacking electric power. Completely self-powered. Easily portable by one man.

Write for Interesting Free Booklet on "COST CONTROL"



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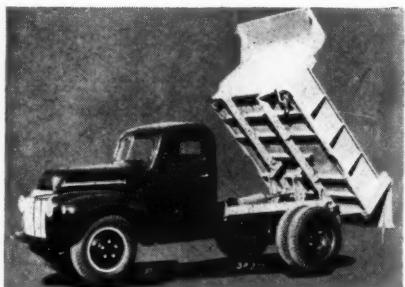
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SINCE 1906 MANUFACTURERS OF QUALITY HEATING & VENTILATING PRODUCTS

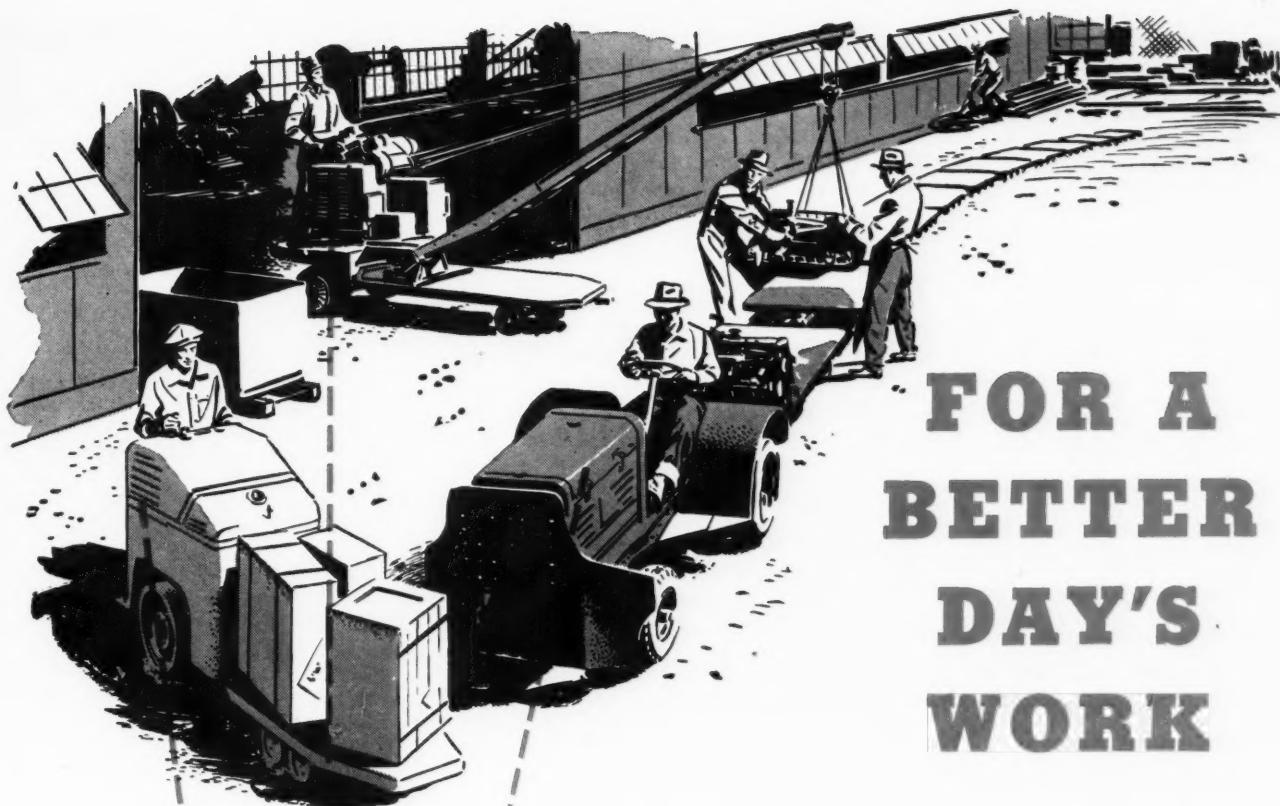


PHOTO - COPYING UNIT — Copy-Roll Kit is a new photo-copying unit with complete processing facilities and self-contained dark-room compactly arranged in a carrying case for easy portability. Will produce letter and legal-size photo-exact facsimiles of anything written, typed, printed, drawn or photographed in a matter of minutes. Eliminates necessity of dark room. Requires no special technical knowledge or skill. Simple operation involves pressing light switch and rolling "copy-roll" over the material to be copied and then processing, washing and drying for finished, permanent photo copy. —Fairchild Aerial Services, Inc., 53 W. Union St., Pasadena 1, Calif.

HEAVY DUTY AIR HOSE — With working pressures of 350 and 300 lb. and inside diameters of $\frac{3}{4}$ and 1 in., a heavy-duty air hose for mining and quarry operations has an extra strong tube, two braids of heavy strength membrane, and a thick, abrasive-resistant, oil-proof cover, yet retains flexibility. —Raybestos-Manhattan Inc., Passaic, N. J.

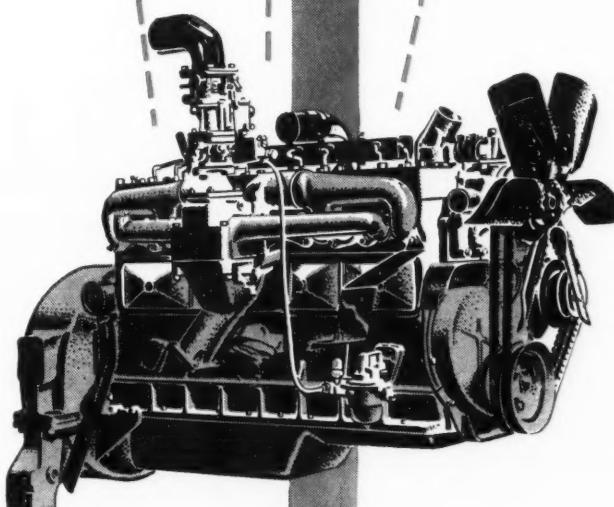


DUMP BODIES — Built of 10-gage steel with channel steel members in the body sub-frame in capacities from 2 to 5 cu.yd., six different hoists are offered to match various body lengths and capacities. Photo shows a St. Paul model of body 8 ft. long and of capacity 3-4 cu.yd. —Gar Wood Industries, Inc., St. Paul Div., Minneapolis 14, Minn.



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IN INDUSTRY—ON FARMS—IN OIL FIELDS—IN FORESTS AND ON THE HIGHWAYS!



• The job of keeping America's production lines rolling calls for power that knows no quitting time . . . power that serves *every* shift efficiently and economically. That's why you'll find Chrysler Industrial Engines and Power Units serving American industry in cranes, lift trucks, tow trucks, pumps, air compressors and arc welders. The manufacturers of industrial equipment know that each Chrysler Industrial Engine is the result of the engineering and production skill of Chrysler Corporation. They know from experience that Chrysler Industrial Engines are built to deliver A Better Day's Work!



FACTORY-ENGINEERED
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EXPERT MAINTENANCE
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HORSEPOWER WITH A PEDIGREE

INDUSTRIAL ENGINE DIVISION, CHRYSLER CORP., 12200 E. JEFFERSON, DETROIT 31, MICH.

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Operating from coast to coast throughout the United States and Canada, in Hawaii and Puerto Rico, the Hartford has qualified surety experts available everywhere to work with Hartford bonding agents and contractors in providing quick bonding service for any undertaking, large or small.

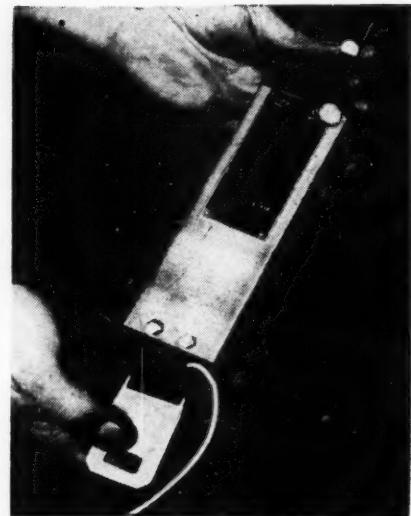
For contractors interested in Federal Government projects, a special free service is available through the Hartford's Government Service Bureau, at 925 Fifteenth Street, N. W., Washington, D. C. Manned by experienced, capable personnel, intimately acquainted with government procedures and requirements, this Bureau can function as your own on-the-spot representative at the national capital.

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BELT-CARRIED SHOT FIRER—A capacitor-operated, 10-shot firer offers safety features and can be carried on and fired from the belt if desired. Charge is transferred to two condensers and then to explosive by a special safety key which prevents accidental discharge. Unit weighs slightly over 1 lb. Safety features include automatic charge dissipation if not used; recessed terminals, non-metallic, non-conducting case and neon light indicating when unit is ready to fire.—**Farmers Engineering and Mfg. Co.**, 549 Brushton Ave., Pittsburgh 21, Pa.

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DOUBLE DRUM PAVER

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Two sizes — 34-E Single Drum and 34-E DuoMix (Double Drum).

THE FOOTE COMPANY, INC.
Subsidiary of Blaw-Knox Co.
1910 State Street • Nunda, New York

See advertisement on Page 140.

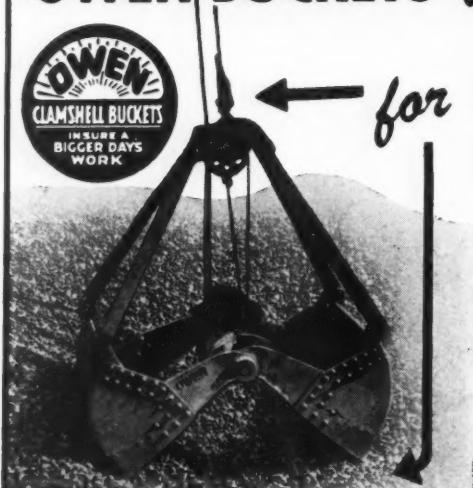


Ask about the Adnun Black Top Paver, the only paver of its kind that will lay black top, stone and cinders.

FOOTE

MULTIFOOTE CONCRETE PAVERS
ADNUN BLACK TOP PAVERS
Kinetic ASPHALT MIXERS

OWEN BUCKETS *are popular*



steel castings, light enough to prevent top heaviness and designed for rigid arm connections.

Special head design eliminates wear on upper arm ends.
Rack and wobble is prevented.

and thus are more adaptable to various operating conditions.

Owen Bucket heads
are one-piece alloy.

The Owen Bucket Company
6020 Breakwater Avenue, Cleveland, Ohio



POWER SEWER CLEANER—Designed to speed sewer cleaning operations and increase work safety, a power bucket machine features a folding third wheel for easy positioning, a cast steel cable swivel permitting rotation under pulls up to 10,000 lb. and a booster clutch to be used on loads over 1,500 lb. Included are Zerk lubrication system, overnight drum, H.D. semi-elliptic springs, solid steel axle, 600x16-in. tires and a large tool box. One man can lift the touring end.—Flexible Sewer-Rod Co., 9095 Venice Blvd., Los Angeles 34, Calif.

LUMINOUS LIGHTING SYSTEM—
High levels of illumination with elimination of glare are provided by Sky-Glo, a new lighting system of translucent louvers. Sky-Glo is adaptable to almost any shape or size of room and is economical in installation and maintenance. Louvers are translucent and do not alter color of light.—**Benjamin Electric Mfg. Co., Desplaines, Ill.**



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Division of
MORSE BOULGER DESTRUCTOR CO.

CONVEYOR SYSTEMS

CONVEYOR SYSTEMS

CONCRETE BUCKET—A round-type concrete bucket of medium weight, 27-cu.ft. capacity, 63-in. height and 55-in. dia. is made of heavy steel plate welded throughout, with steel bar reinforcement around top and bottom. Discharge opening is 14 in. square and is closed by a double-acting steel-plate gate, designed for hard service and tight closing to prevent grout leakage. Gate is operated by a curved-pipe handle, and a large reinforced eye permits quick suspension on a crane hook.—Muller Machinery Co., Inc., Metuchen, N. J.

ANNOUNCING

the NEW
HR



165 hp at 1800 rpm

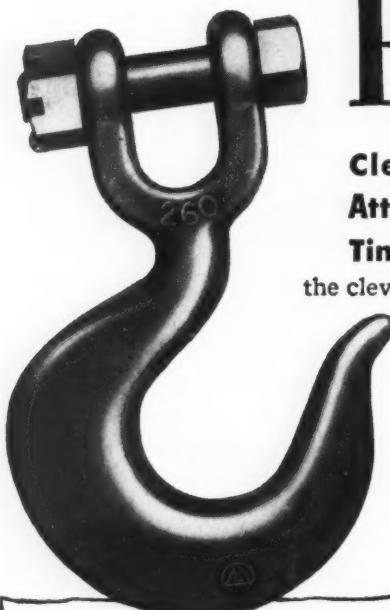
Similar in design to the famous "Model H" . . . for 15 years the standard of comparison for high-speed diesel engines . . . the new six-cylinder Cummins

HR-600 Engine offers you even more power per engine pound.

Your Cummins Dealer or the manufacturer of your earth-moving and material-handling equipment can show you this newest Cummins Diesel. Your Cummins Dealer can also *convert* your present "Model H" engines. See him.

CUMMINS ENGINE COMPANY, INC. • COLUMBUS, IND.

Here are Hooks that hoist your Profits!



Clevis Hoist Hook Is Quickly Attached . . . Changed . . . Saves

Time and Labor. Slip the bolt through the clevis, spin the nut, spread the cotter and this heat-treated hook's ready and safe for your toughest jobs. No welding, no spelter, no connecting fittings required. Send for Laughlin's famous data book of industrial fittings...Catalog No. 140.

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Laughlin Safety Hook . . . "The Latch Locks The Load" . . . adds a big safety factor to every lift. Sturdy latch, stainless steel spring. For every industrial application.



Laughlin Replacement Swivel Hook Assembly with Safety Latch. Bolts on and off . . . no machining . . . no threading. For hoists, cranes, lashing operations. One-ton and half-ton sizes.

LAUGHLIN

THE MOST COMPLETE LINE OF DROP-FORGED WIRE ROPE AND CHAIN FITTINGS



HAMMER BIT—Blue Cyclone hammer bit is carbide tipped and has two deep flutes and tapered shank made to fit the Rawl chuck. Designed for accurate drilling in granite, pebble concrete, hard brick, etc., the bit comes in $\frac{3}{8}$ -, $\frac{1}{16}$ -, $\frac{1}{2}$ -, $\frac{5}{8}$ -, $\frac{3}{4}$ - and 1-in. sizes.—New England Carbide Tool Co., 60 Brookline St., Cambridge 39, Mass.

INCREASED HORSEPOWER RATINGS—Design of the TD-14 and TD-18 Diesel crawler tractors has been changed to give increased horsepower ratings. The TD-14 now develops 72 hp. at the flywheel, 68 belt horsepower, and 57 drawbar horsepower at 1,400 rpm. At 1,300 rpm., the TD-18 develops 97 hp. at the flywheel, 91.5 belt horsepower and 80.5 drawbar horsepower. Compression ratio of both engines is $15\frac{1}{2}$ to 1. Intake and exhaust manifolds are mounted on opposite sides of the engine, and new fuel injection systems are featured by both models.—International Harvester Co., Industrial Power Division, Chicago, Ill.

TO COPE WITH LOW HEADROOM PROBLEMS



rely on
ROGERS
GIRDER TYPE TRAILERS

- This trailer is ideal for moving large cranes and shovels long distances at high speed.



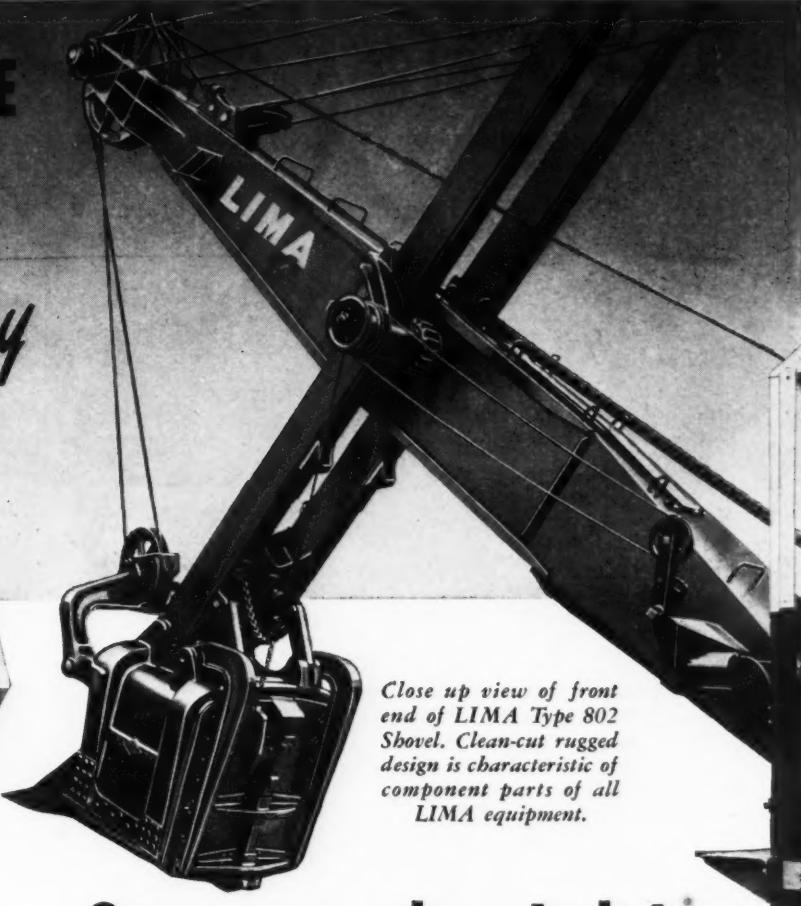
ROGERS BROTHERS CORPORATION

220 Orchard Street
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EXPERIENCE
builds 'em
PERFORMANCE
sells 'em

A LOOK AT THE FRONT END

*shows another
reason why*

LIMA



Close up view of front end of LIMA Type 802 Shovel. Clean-cut rugged design is characteristic of component parts of all LIMA equipment.

SHOVELS... Stay on the Job!

"LIMAS GIVE THE LEAST TROUBLE OF ANY MACHINES WE HAVE"

THIS STATEMENT from a customer is typical. LIMA excavating equipment has that extra "built-in" stamina which means increased production and minimum "down-time".

Take, for example, the Front End of the Shovel. Look at the sturdy boom—of all-welded construction with

LIMA Type 1201 Convertible Shovel, Crane and Dragline.



inside reinforcements for extra strength. Shipper shaft is splined for permanent alignment with crowd chain sprocket and pinions. Location—not on top, but near center line of boom gives better support, and at extended position allows direct pull, minimizing strain on cable, racking, shaft, and boom, also allowing higher lift and increased working range.

The smooth machined throat of the large diameter sheave is a machined groove—accurately centered to shaft—with no high spots to wear cables. Independent chain crowd permits shaking of dipper. Spring bumper blocks take shock of dipper door and wood bumper blocks absorb shock of dipper at base of boom. Every component is designed for highest output with minimum maintenance.

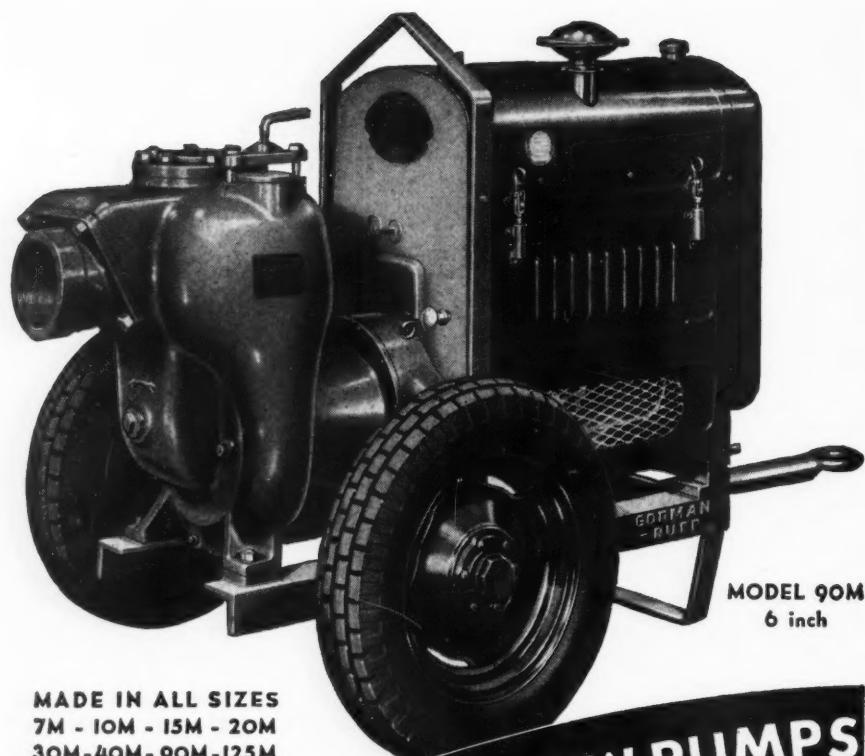
Lima shovels range from $\frac{3}{4}$ to 6 yard capacities, cranes from 13 to 100 tons. Write for descriptive bulletins.

Lima Shovel and Crane Division

LIMA, OHIO

OTHER DIVISIONS: Lima Locomotive Works Division; Niles Tool Works Co.; Hooven, Owens, Rentschler Co.





MADE IN ALL SIZES
7M - 10M - 15M - 20M
30M - 40M - 90M - 125M

MODEL 90M
6 inch

GORMAN-RUPP'S NEW PUMPS

**CHALLENGE ANY PUMP TO
MATCH THEIR PERFORMANCE**

With a new complete line of Contractors' Pumps, Gorman-Rupp has topped their own past high record of performance with a better pump --

- QUICKEST PRIMING
- HIGHEST PRIMING
- PUMPS MORE DIRTY WATER

Compare them for priming speed:

The new Model 15M (3") primes at 25 ft. suction lift in 61 seconds.

The new Model 90M (6") primes at 25 ft. suction lift in 44 seconds.

And the Gorman-Rupp is still the most simple pump --

No ports, no valves, no clean-out plates, nothing to cause stoppages.

*Write for the new Contractor's
Bulletin 8-CP-11*

**THE GORMAN-RUPP
Guarantee**

Our distributors are authorized to put a Gorman-Rupp Contractors' Pump on any pumping job, anytime, anywhere, alongside any other make pump, size for size. The Gorman-Rupp pump is guaranteed to pump more dirty water more hours, using less gasoline and to prime quicker than any other self-priming pump. If it isn't the best all around pump, our distributor will accept the return of the Gorman-Rupp pump and pay the user any installation expense incurred.

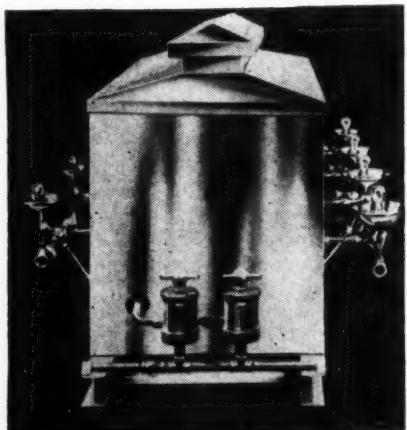


THE GORMAN-RUPP COMPANY
MANSFIELD, OHIO



ROAD MAINTAINER — Developed for maintenance of dirt and gravel roads, the 1948 Maintainer is a standard model with 20,000-lb. gross rating and chassis weight of 8,000 lb. Standard wheelbase is 154 in., and frame length back of the cab is 121½ in. Empty frame height of 45½ in. and 40¾-in. loaded height enables accommodation of any underbody maintenance blade. High arched springs and overhead spring shackle mounting make the extra frame height possible. Load concentration on the rear axle results in more regular blade action. — **Four Wheel Drive Auto Co., Clintonville, Wis.**

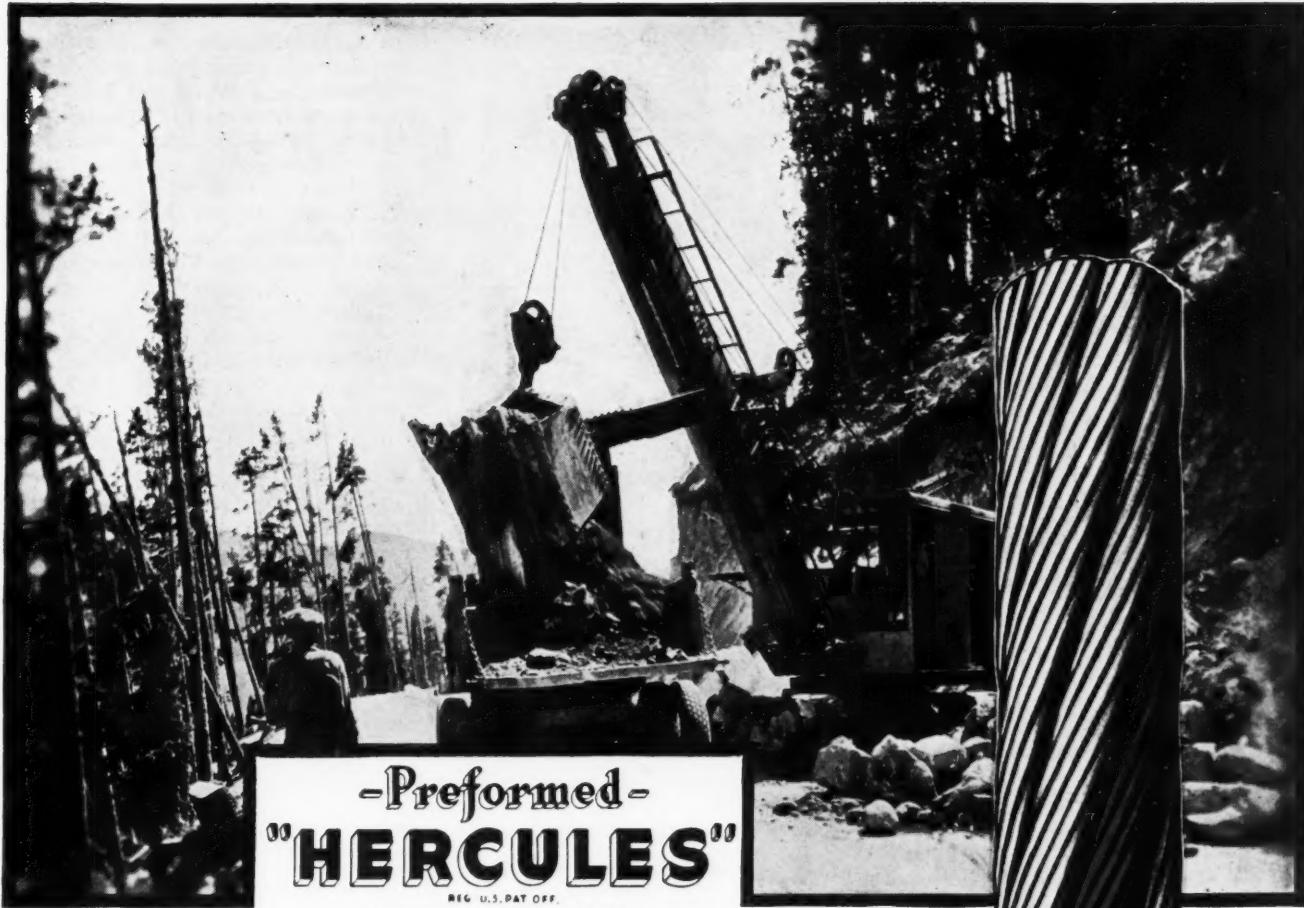
ELEVATOR BUCKET — An independent "Ejector Plate" dislodges all contents of the elevator bucket. The plate serves as the back of the bucket but is attached to the elevator belt by an entirely separate mounting. Buckets come in standard sizes; special sizes by order. Construction is of 3/16-in. steel plate, with or without reinforcement lip. — **Pekay Machine and Engineering Co., 100 N. LaSalle St., Chicago 2, Ill.**



MOBILE WATER COOLER — A 25-gal. mobile water cooler, housed in a 60x30x24-in. weatherproof stainless steel cabinet is available with up to 8 sanitary bubblers. Clarity and excellent water taste are assured by self-contained filter-dechlorinators. Rugged construction and I-beam mounts enable truck or mobile carrier transportation, and the cooler may be operated by electrical or gas-engine power. — **Filtrine Mfg. Co., 53 Lexington Ave., Brooklyn 5, N. Y.**

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-Preformed-
"HERCULES"
REG. U.S. PAT. OFF.
RED-STRAND
WIRE ROPE

**Easy to Handle...Safe and
Economical to Use**

You can depend on Preformed "HERCULES" (Red-Strand) Wire Rope for top-notch performance. Its easy handling . . . its smooth spooling . . . its unusual endurance — make for faster work, longer life and lower operating cost.

Made in a wide range of Round Strand and Flattened Strand constructions. Let us help you select the right rope for your particular work.

"HERCULES"
(RED-STRAND)
the DEPENDABLE
WIRE ROPE
REG. U.S. PAT. OFF.
for any TOUGH JOB

MADE ONLY BY

A. LESCHEN & SONS ROPE CO.

ESTABLISHED 1857

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CHICAGO 7
SAN FRANCISCO 7

HOUSTON 3
PORTLAND 9

DENVER 2
SEATTLE 4



Parmanco

MECHANICAL FEED
HORIZONTAL DRILL
WITH TRACTION DRIVE

Ten years of field test has proven that our power-feed design of direct, transmission and worm gearing with two-speed control will not only cut shot hole drilling time in half but also eliminates costly maintenance delays. V-belt drive to the power-feed with an additional ample clutch in that assembly gives absolute control of a drilling speed of two to three feet per minute with a retrieving speed of twenty-four feet per minute.

The Parmanco Horizontal is adapted to all forms of high-wall drilling, will handle a six-inch auger up to a distance of sixty feet or more and, by use of our patented augers with interrupted flights and secondary cutters, will drill an absolutely clean hole with a minimum of torque. It permits the drilling of a controlled-angle hole which makes possible a great saving of explosives through the cantilever effect of this controlled-angle drilled hole.

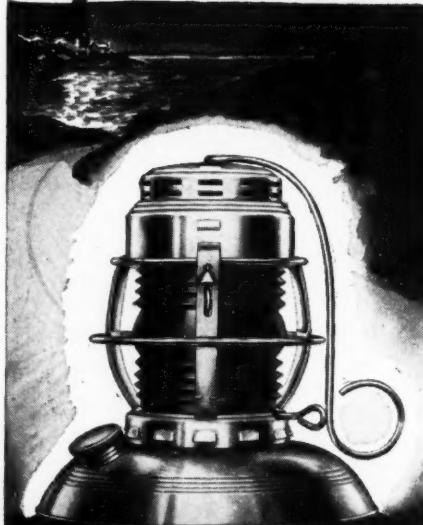
**EFFICIENT STRIPPING STARTS WITH
EFFICIENT DRILLING**

PARIS MANUFACTURING COMPANY
PARIS, ILLINOIS

EXTREME PRESSURE DRY LUBRICANT—Molykote, a new-type dry lubricant consists of molybdenum disulfide powder and has the appearance of graphite, though it contains none. With light rubbing it adheres to smoothest surfaces. Tests have shown low friction coefficient and capacity to prevent metal-to-metal contact at bearing pressures of over 100,000 psi. Ten ounces will cover 500 sq.ft. of smooth metal surface with a tenacious shiny coating. Maker suggests use as factory-applied life-time lubricant. Product may be mixed to a paste with SAE 10 motor oil.—Alpha Corp., Greenwich, Conn.

PORTABLE THREADING MACHINE—Eliminating the need for a chuck wrench, an electrically-powered pipe and bolt threader is equipped with a "Spinfast" front chuck. Standard range is $\frac{1}{4}$ - to 2-in. pipe. Extra range $\frac{1}{8}$ -in. pipe. Range with special drive shaft $2\frac{1}{2}$ to 8-in. pipe. Bolt range $\frac{1}{4}$ to $1\frac{1}{2}$ -in. pipe. Motor is universal reversible; variable speed for 110 v., a.c. single phase or d.c. A steel stand with 16-in. wheels is furnished when desired.—Oster Manufacturing Co., 2085 E. 61st St., Cleveland 3, Ohio.

**The Lighthouse
of the Highway**
EMBURY
Traffic Gard
The Warning Lantern
with the
SAFETY BEAM



Order through Your Jobber
EMBURY MFG. CO., WARSAW, N.Y.

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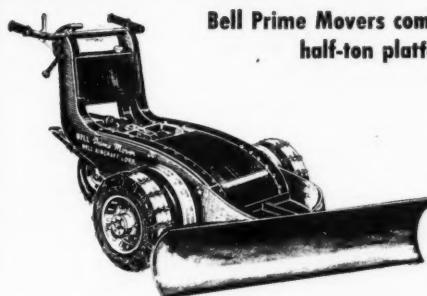
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It saves up
to \$36 daily



The BELL Prime Mover

★ PATENTS AND T. M. REG. PENDING. COPYRIGHT, 1948



Bell Prime Movers combine the functions of giant concrete buggies, half-ton platform trucks, and baby bulldozers . . . enable one man to do the work of four.

Here are just a few examples of how Bell Prime Movers pay for themselves in an amazingly short time. If other companies can make these savings, so can your company...

Milwaukee. A building contractor is saving at least \$36 daily by pouring concrete with only one Prime Mover. Another uses Prime Movers to haul broken concrete and asphalt . . . two men with Prime Movers do the work of four men with concrete buggies.

New York City. This contractor is moving stone up four ramps to a height

of 28 feet. His Prime Mover climbs these 28-degree ramps with half-ton loads. He saves two man-days per day by mechanizing this job with a platform-equipped Prime Mover.

Buffalo. On this job, six Prime Movers are being used to pour concrete on a multi-story project. While two are loading, two are riding the hoist, and two are pouring. Three man-days are saved each day by each machine. The Prime Mover also takes as much bagged cement in one trip as 10 men can carry by hand.

Write for additional case histories and facts . . . as well as the names of nearby distributors who sell and service the Bell Prime Mover.

A Few Features

- bucket holds 10 cubic feet . . . 18 with sideboards
- 50-inch scraper blade
- 9-square-foot platform body
- gear driven . . . no belts or chains
- clutch, engine, transmission fully enclosed . . . run in oil

A PRODUCT OF

BELL Aircraft
CORPORATION



BELL AIRCRAFT CORPORATION
Post Office Box 1C-10, Buffalo 5, New York

Please send me additional facts about the Bell Prime Mover.

Name Address

Company

City, Zone, and State



WHY BUY "BLINDFOLDED"?



Why take a chance when you buy a concrete mixer or paver? Why not be sure *in advance* of the exact capacity by making sure that your next mixer or paver wears an AGC Rating Plate!

The AGC Rating Plate eliminates the guesswork . . . the "blindfold" method of equipment buying. Before any mixer or paver can wear the Rating Plate, it must accurately conform to the standards set up by the Mixer Manufacturers Bureau for your protection. Size and capacity are guaranteed as stated on the plate.

Be sure! Standardize on equipment wearing the AGC Rating Plate and buy with confidence . . . operate with accuracy!

MIXER MANUFACTURERS BUREAU

Affiliated with the Associated General Contractors of America, Inc.



Chain Belt Company
Milwaukee, Wis.

Construction Machinery Co.
Waterloo, Iowa

Koehring Company
Milwaukee, Wis.

Ransome Machinery Co.
Dunellen, N. J.

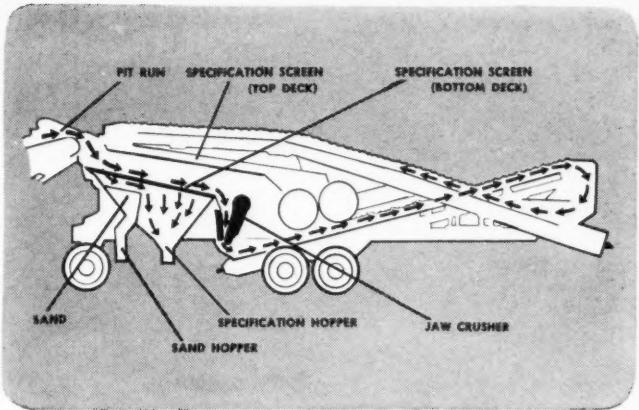
Kwik-Mix Company
Port Washington, Wis.

The Foote Co., Inc.
Nunda, N. Y.

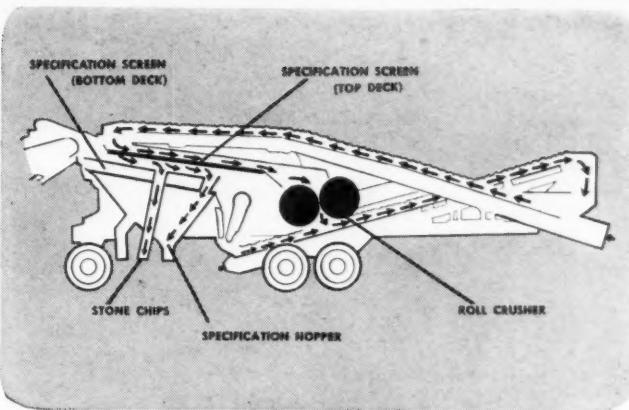
The Jaeger Machine Co.
Columbus, Ohio

The T. L. Smith Company
Milwaukee, Wis.

The Knickerbocker Co.
Jackson, Mich.



1 PIT RUN is fed to bottom deck of 3½ deck screen, eliminating scalping screen. Sand is rejected by half deck. Throughs go to pay hopper, they never reach a crusher. Oversize goes to jaw crusher where "force-feed" increases production.

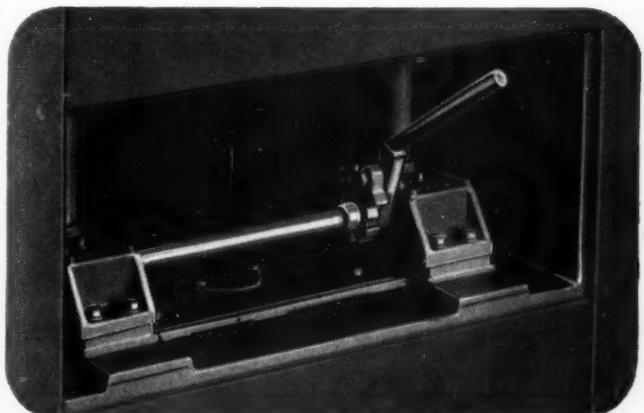


2 ONLY CRUSHED ROCK is screened by top deck. Specification material is chuted around bottom deck—not through it. Top deck produces independently from bottom deck doubling the effective screening area. Stone chips can be produced without extra equipment.

Only bottom deck feed* gives you these 2 high output features—

- **TWICE THE PAY SCREENING AREA** because both top and bottom decks produce specification material—*independently*—at the same time.
- **MORE CRUSHING CAPACITY** because the load can be balanced between the crushers *without stopping the plant*.

* Exclusive with Pioneer Duplex Gravel Plants.



3 THIS SIMPLE RATCHET on the jaw crusher balances the load between the two crushers while the plant is operating. It is not necessary to change screens. When material is coarse, the jaw is opened. If pit run is fine, the jaw is closed.



4 PIONEER MAKES FOUR SIZES of duplex gravel plants with bottom deck feed. This Diesel-Electric Plant is the fifth bottom deck feed plant owned and operated by Winston Brothers. A new booklet tells all about bottom deck feed. Send for it today!

BUY BOTH!

Higher Output,
Lower Upkeep!

Pioneer

Continuflow EQUIPMENT

NEW BOOKLET!-----

PIONEER ENGINEERING WORKS

1515 Central Avenue
Minneapolis 13, Minnesota

Please send me your new booklet telling all
about Bottom Deck Feed.

NAME _____
COMPANY _____
STREET _____
CITY _____ STATE _____

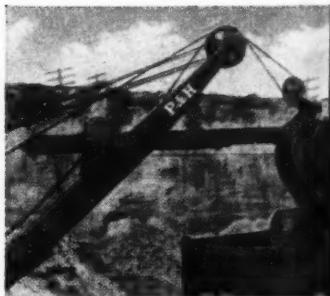


How **P&H PLANETARIES** Pep Up Production

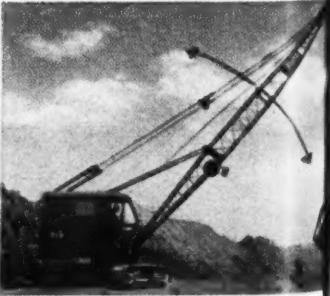
This is the planetary transmission used so effectively on P&H Excavators. Through the use of this simple, proved principle, P&H provides operating characteristics which are unmatched for speed, smoothness and accuracy of control.

Where frequent reversals are required, such as for shovels or for the main drum in crane service, the planetary provides remarkable flexibility, yet delivers full power as positively as a gear.

P&H originated and patented the application of the planetary transmission on excavators and has always led in its development. Its various uses, explained here and on the following page, constitute another important P&H Added Value.



PLANETARY CHAIN CROWD provides full power for crowd and rapid reversal, with dipper return twice that of crowding speed. It's smooth, positive and accurate enough to dig within a inch of grade.



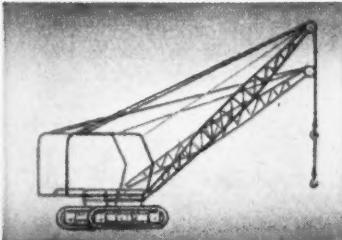
PLANETARY BOOM HOIST is independent—triple safe. Safety lowering against engine compression makes it impossible for the boom to drop suddenly.

and in crane service . . .

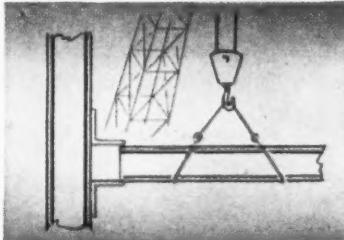
PLANETARY CONTROL

means safer, faster, more
accurate load handling

Here's an operating feature you'll find on no other crane—planetary raising of both boom and load, together or independently. It is quick, easy and safe. And with load lowering against engine power, there's greater accuracy for "inching" heavy loads where utmost precision is required.



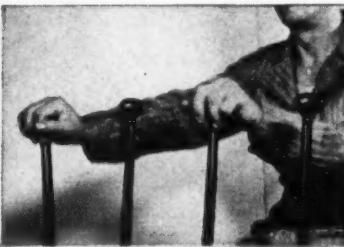
HERE'S A BIG ADVANTAGE in work such as steel erection. Operator can raise boom and load as machine moves forward, without forward motion of the boom point.



BOOM AND LOAD can be lowered smoothly, steadily, without jerking. This permits more precise handling of heavy members such as in fitting up structural steels.



COMPLETE SAFETY. Holding brakes are supplemented by ratchet mechanism which automatically prevents lowering boom faster than engine speed. Like coasting your car downhill in low gear.



EASY OPERATION is provided through simple, positive hydraulic control; more responsive. The operator reacts naturally with direct "feel" of the load at all times.

P&H

EXCAVATORS

4494 W. National Ave.
Milwaukee 14, Wisconsin

HARNISCHFEGER CORPORATION

EXCAVATORS • ELECTRIC CRANES • ARC WELDERS • HOISTS • WELDING ELECTRODES • MOTORS



The P & H planetary transmission is the simplest, most compact mechanism for these Crane functions. There are no exposed gears, no stub shafts, no extra clutches.

P & H design and construction offer many other important added values to the excavator buyer. Ask your nearest P & H dealer about them or write us for complete information.

P&H Excavators are built in sizes from $\frac{3}{8}$ to 6 cu. yds. with gasoline, Diesel, or electric power. Ask for bulletins on the size that interests you.

"pig in a poke, or..."

Many of you will remember way back when the buying of concrete mixing and placing equipment was a "pig in a poke" proposition. No two units were similar in size or capacity. It was a virtually impossible task for the owner to accurately estimate the capacity of his machines or to bid accurately on jobs. And not only did this confusion hamper the user, but the manufacturers were also badly handicapped in their manufacturing and sales policies and particularly in their relations with customers.

The founding of the Truck Mixer Manufacturers Bureau was a direct result of this early confusion. The manufacturers of this equipment realized early that it would be of maximum benefit to user and maker if a set of standards were adopted that would guarantee the size and capacity of the mixer. It would protect the user against "outlaw sizes" ... protect the maker against buyer resentment.

Today, a truck mixer must conform to these standards and as evidence of successful conformance, a Bureau rating plate is prominently displayed on the truck mixer.

Look for it! It is your guarantee of accuracy!



Truck Mixer Manufacturers Bureau

Affiliated with The National Ready Mixed Concrete Association

BLAW-KNOX DIVISION
Pittsburgh, Pa.

CHAIN BELT COMPANY
Milwaukee, Wis.

CONCRETE TRANSPORT MIXER CO.
St. Louis, Mo.

THE JAEGER MACHINE COMPANY
Columbus, Ohio

RANSOME MACHINERY COMPANY
Dunellen, N. J.

THE T. L. SMITH COMPANY
Milwaukee, Wis.

PAINT SPRAY GUN—More uniform air flow makes possible a smoother, higher-gloss finish with the Micro-Spray paint gun. Among its features are a single fluid needle for all spraying, good balance, easy removal and assembly of parts, and three spray heads covering the full range of paint spray materials.—American Brake Shoe Co., Kellogg Division, Rochester, N. Y.



PORTABLE ROCK DRILL—A small gasoline or electric motor with auxiliary air compressor transmits torque through a flexible shaft to a cam-and-piston drill hammer in the Pinazza rock drill, recently imported from Italy.

Compressed air is used only for blowing holes and for cushioning the rebound of the hammer piston. The cams pick up the rebounding piston and carry it to full compression in the drill cylinder, then release the piston for the driving stroke. Two models, weighing 35 and 41 lb., respectively, each deliver 1,600 strokes per min., the smaller model handling $\frac{3}{4}$ in. drill steel and the larger handling $\frac{3}{4}$ and 1-in. steel. The smaller model with its 3.5-hp. gasoline motor, compressor and flexible shaft weighs 114 lb. Weight of the larger complete unit, with 5.5-hp. engine, is 149 lb. For electrical installation, the smaller rig requires a 1½-hp. motor to drive the compressor, and a 1½-hp. motor to drive the flexible shaft. In the model using electric power, air from the compressor is blown through a flexible tube to cool the motor driving the flexible shaft, then the air travels through the flexible shaft housing and into the rock drill.—Central Industries Ltd., 30 Church St., New York 7, N. Y.

HYDRAULIC JACK—Designed to meet the special needs of house movers, a 25-ton model and a 10-ton model hydraulic jack feature a safe, wide base; minimum required clearance; high lift; easy, positive hydraulic action; self-return and ability to operate in any position—horizontal as well as vertical. Each unit is tested to 40 percent overload.—Curtis Jack Co., Inc., 1234 Roy St., Seattle 9, Wash.



Basement to roof—at every step of construction, SCOOT-CRETE'S pivot-point steering, rugged design, and powerful engine keep it on the job, speeding up material handling and cutting man hours.

SCOOT-CRETE*

*TRADE MARK

Your Next Step to Cost-Cutting

Put several Scoot-Cretes to work on your jobs. They eliminate back-breaking wheelbarrow work. They save time, cut costs.

Built to give years of service with a minimum of maintenance. Look at these unmatched features:

STURDY, TRUCK-TYPE AXLE—Plenty of extra strength for handling shock loads.

HIGH FLOTATION TIRES—Heavy-duty 7:50" x 10" tires have plenty of ground contact area for positive traction in mud or soft dirt.

HEAVY-DUTY, WELDED STEEL FRAME—Will not twist out of shape when handling capacity loads on rough surfaces.

WORM STEERING—Gives operator complete control and freedom from fatigue at all times. No wheel shock, no jack-knifing.

PIVOT-POINT STEERING—Provides high maneuverability on narrow ramps and scaffolding.

1-TON CAPACITY—Box holds full mixer batch, 14 cu. ft. Scoot-Crete weighs only 1000 lbs. empty.

INTERCHANGEABLE PLATFORM—Change from dump box to platform in just a few minutes. Use platform for hauling bricks, blocks, form material, or tools.

SHOCK-ABSORBER SEAT—Gives maximum operating comfort.

6 H.P. AIR-COOLED ENGINE, 4 - SPEED TRANSMISSION—Plenty of power to carry 1-ton up 20% incline.

DEALER,
DISTRIBUTOR
INQUIRIES INVITED



GETMAN BROTHERS MANUFACTURING DIVISION

Manufacturers of Materials Handling Equipment

SOUTH HAVEN, MICHIGAN

WHEN OTHER MACHINES ARE "MOVING UP"

MUCH time ordinarily spent on moving about is converted into productive digging time when you put a Bucyrus-Erie walking dragline on your operations. The reason is simply that a Bucyrus-Erie cuts moving time by taking the most direct route. It can walk safely and surely in any direction, can change course by a mere swing of the revolving frame; no special steering mechanism is used — or needed. The machine is always ready to step off in any direction necessitated by working conditions—away from slides, along the edge of a steep bank, around obstructions, out of trouble's way.

With its exclusive rolling-cam walking traction, a Bucyrus-Erie takes every step safely, smoothly, quickly, cushioning the machine down. Rough ground seldom bothers because the walking shoes are mounted to pivot sidewise, conforming to any ground surface for a firm grip.

The walking efficiency of a Bucyrus-Erie gives you more time to use its "years ahead" digging efficiency!

24M47

**BUCYRUS
ERIE**

*Bucyrus Walkers
are
MOVING DIRT*



Booms: 110 to 250 ft.
Buckets: 4 cu. yd. to 25 cu. yd.

BUCYRUS - ERIE COMPANY
SOUTH MILWAUKEE, WISCONSIN

New PUBLICATIONS From MANUFACTURERS

The catalogs and bulletins reviewed below will keep you posted on latest developments in construction equipment and materials available for your use

HIGHWAY SHOULDERS—Booklet, "Highway Shoulder Improvement Methods," is published for the use of design, maintenance and roadside development engineers and for landscape and parkway architects. It deals concisely with widely extended problems now attending overcrowded highways.—Seaman Motors, Inc., 305 N. 25th St., Milwaukee 3, Wis.

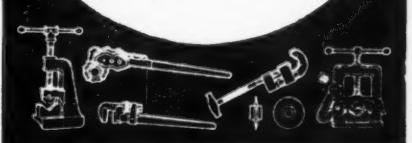
HORIZONTAL MOTO - MIXERS—Bulletin explains features of a moto-mixer—such as chain drum drive, 3-point drum mounting, leakproof charging door, and the discharge spout. Bulletin also covers agitators.—Chain Belt Co., 1600 West Bruce St., Milwaukee 4, Wis.



"ARMSTRONG BROS." Pipe Dies and Chasers are machined from special alloy steel, are heat treated and oil tempered. Cutting teeth are "backed-off" with ground points—cut faster, cut easier, cut smooth, tight-fitting threads. They come in "Solid," "Adjustable" and "Receding" types to fit all standard make stocks and threaders. Standardize on "ARMSTRONG BROS." Dies and Chasers for better thread cutting.

Stocked in Leading Tool Departments.

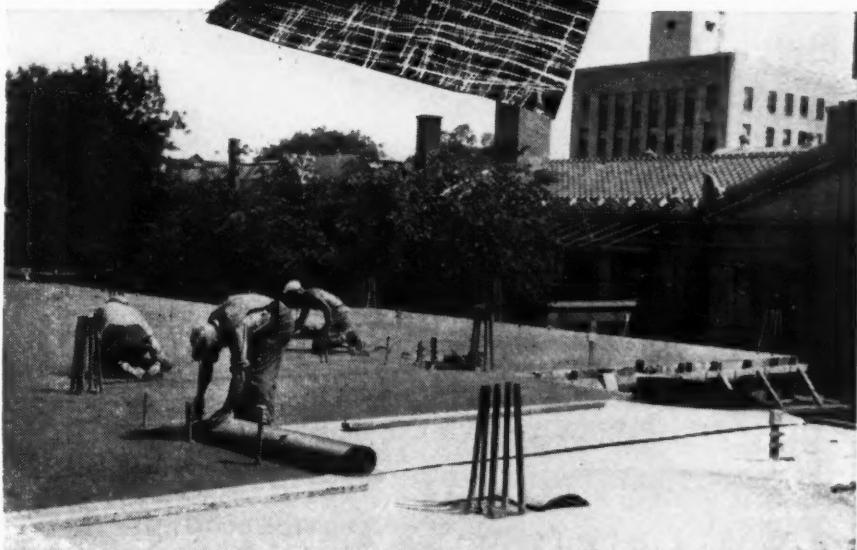
ARMSTRONG BROS. TOOL CO.
5234 W. Armstrong Ave., Chicago 30, U.S.A.
Eastern Whse. and Sales: 199 Lafayette St., New York 12, N. Y.
Pacific Whse. and Sales Office:
1275 Mission St., San Francisco
3, Calif.



MAXIMUM PROTECTION MINIMUM COST with **SISALKRAFT**

Reinforced with thousands

of steel-like Sisal fibres



SISALKRAFT used for curing and protection of concrete floors of multi-story building

CLEAN and DUST-FREE FLOORS AT REDUCED COST!

SISALKRAFT is so strong it furnishes positive protection from debris and construction stains, and prevents marring. It also affords dependable frost-protection. It is so light-weight, it can be rolled into place easily and be removed quickly. Economical . . . can be used many times over.

The SISALKRAFT Method of curing and protection is used not only on buildings of concrete construction, but also, in a big way, on concrete highways. This modern method is automatic . . . no watching, no sprinkling, no other covering. The SISALKRAFT Method is a "natural" for you on single-story and multi-story jobs . . . also for driveways, sidewalks and roads. For complete data write Dept. CM.

PROMPT DELIVERY!



The SISALKRAFT Co., 205 WEST WACKER DRIVE, CHICAGO 6, ILL.

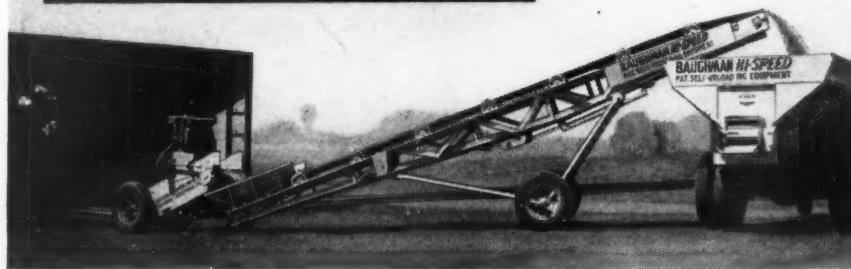
Manufacturers of . . .
SISALKRAFT • SISALATION • COPPER ARMORED SISALKRAFT • FIBREEN • SISALTAPE

THIS TEAM HANDLES 60 TONS PER HOUR!

Baughman New HI-SPEED Conveyor Combination

Moves Material from Car to Truck in ONE OPERATION!

BAUGHMAN #164 Trough Belt Conveyor



Baughman HI-SPEED loading and unloading action slashes time and handling costs to rock bottom!

Here's the "production-wise" answer to handling loose, free-flowing abrasive or non-abrasive material such as sand, gravel, crushed rock, cement, coal, etc., quickly, efficiently, economically.

THESE EXCLUSIVE BAUGHMAN FEATURES SAVE YOU TIME AND MONEY!

- **MAXIMUM FLEXIBILITY!** One man can easily handle. Lifting mechanism simple, and easy to operate. Scissor type hoist supports conveyor at any angle.
- **MOBILITY...PORTABILITY!** Wheels turn on Timken bearings sealed against dirt and water. Equipped with 600 x 16 first grade automobile tires or 28" steel wheels.
- **LIGHTER AND STRONGER!** Open lattice type construction for greater stiffness with lighter weight. Braced to take all strain and thrust.
- **NO SLIPPAge...POSITIVE TRACTION!** Heavy drum type driving pulley at head of machine produces greater traction with maximum efficiency. Tail pulley is Baughman's exclusive non-clogging spider type.
- **NO FLOPPING CHAINS!** Line shaft drive transmits power direct to head pulley through sealed aluminum gear reduction case. No wasted power . . . no unnecessary adjustments . . . no expensive repairs.

WRITE TODAY FOR PRICES
AND
COMPLETE INFORMATION



If It's HI-SPEED ... It's BAUGHMAN!

Baughman Manufacturing Co., Inc.

1100 ARCH STREET • JERSEYVILLE, ILLINOIS

SPRAY MACHINE—New Bulletin describes operations of the Flex-Plane automatic spray machine for applying membrane curing material to concrete roads and airports.—Flex-Plane, Warren, Ohio.

TRANSIT—(4-p. brochure) A 4-p. brochure combining a catalog and calculating chart has been prepared to illustrate twelve types of instruments, from an 18-in. level to a plane table alidade. On the back of the brochure is a chart which gives at a glance the length of circular arcs.—C. L. Berger & Sons, Inc., Boston, Mass.

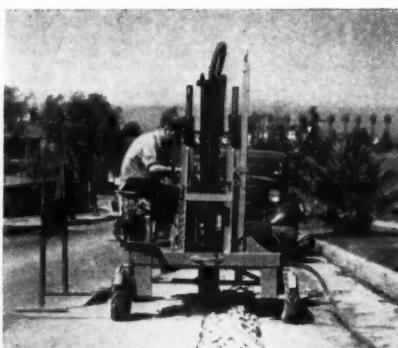
STEEL SERVICE PLANTS—Illustrated booklets tell of Ryerson's larger steel-service plants at Cleveland, Ohio, and Emeryville, Calif. After giving the background of the company's operations, the booklets continue with a picture story of the enlarged plants with their new cutting, handling and shipping facilities, and added space for warehousing large stocks of steel.—Joseph T. Ryerson & Son, Inc., Box 6208, Cleveland 1, Ohio.

BREAK PAVEMENT the low cost way!

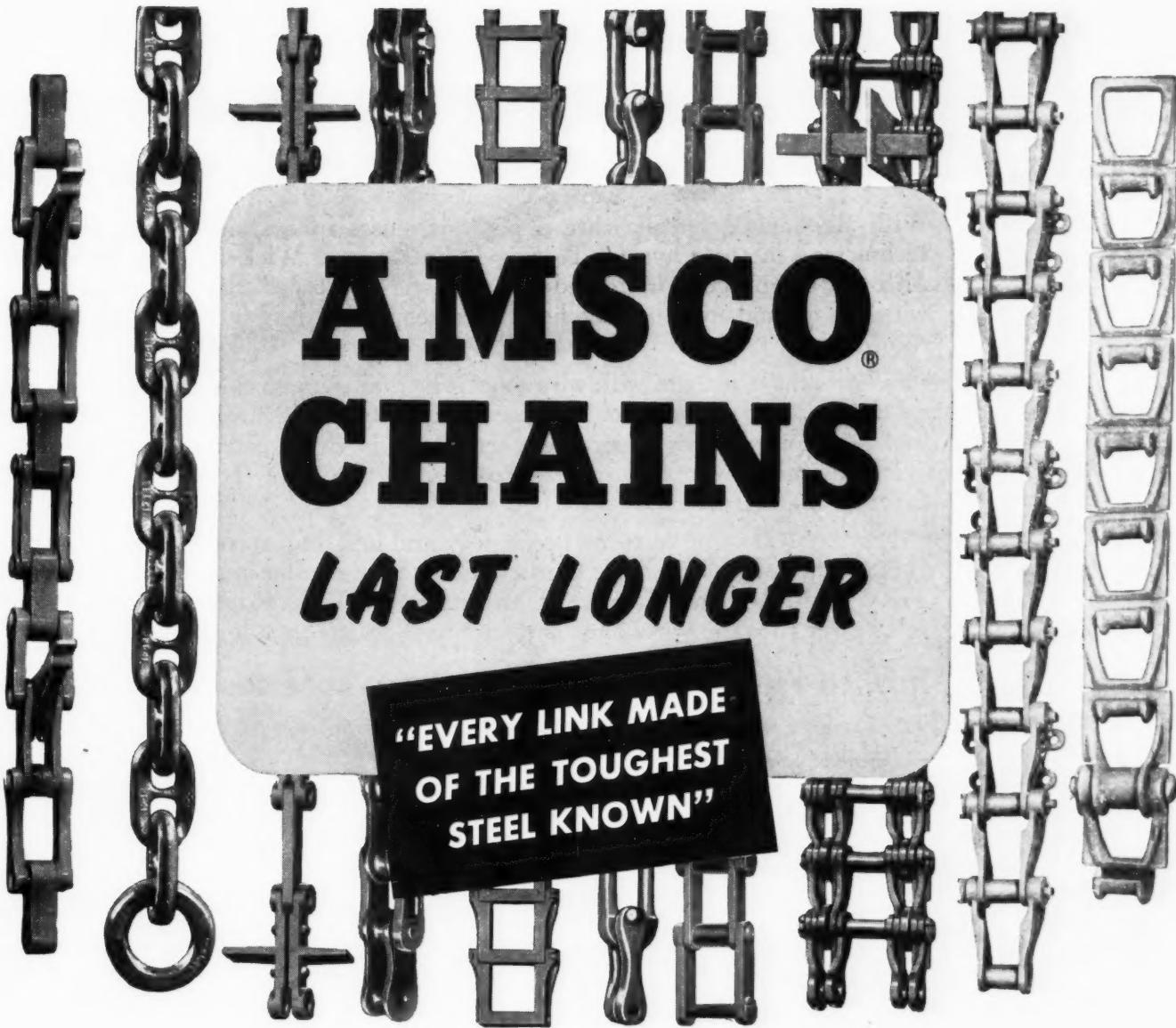
By Using THE MIGHTY MIDGET

Tows to job. Ready to operate in a minute. Use of renewable cutting tools gives very low tool expense. High production. No operator fatigue. Runs off of 105 CFM compressor. Write for Bulletin and nearest dealer's name.

(MM4-2)



R.P.B. CORPORATION
2751 EAST 11th STREET • LOS ANGELES, CALIFORNIA



Replacing ordinary elevating and conveying chain is a constant drain on profits . . . a constant source of production tie-ups and delays. Stop all these worries today by installing Amsco manganese steel chain in the really tough services. It often repays its own cost many times over by its tough resistance to breakage stresses and its outstanding wear resistance.

Here's the kind of service users report: 25 months with little wear versus 8 months; 27 months with 2 years' service left where ordinary chain lasted only 3 months.

With a test-bar tensile strength of 125,000 lbs. (average test), high ductility, and a surface that work hardens to as high as 550 Brinell, Amsco manganese steel chain withstands severest stresses and grinding abrasion . . . it can be used without lubrication in dust-laden atmospheres.

Added to this is the Amsco engineering design experience that will help to meet your problem with the one best chain for trouble-free service. Write for Bulletin 742-CN . . . and let us quote on your requirements.

AMERICAN

Brake Shoe

COMPANY

AMERICAN MANGANESE STEEL DIVISION

CHICAGO HEIGHTS, ILL.

Foundries at Chicago Heights, Ill., New Castle, Del., Denver, Colo., Oakland, Calif., Los Angeles, Calif., St. Louis, Mo.

Offices in principal cities. In Canada: Joliette Steel Limited, Joliette, Que.

Wickwire Rope is "Tissue Tested"

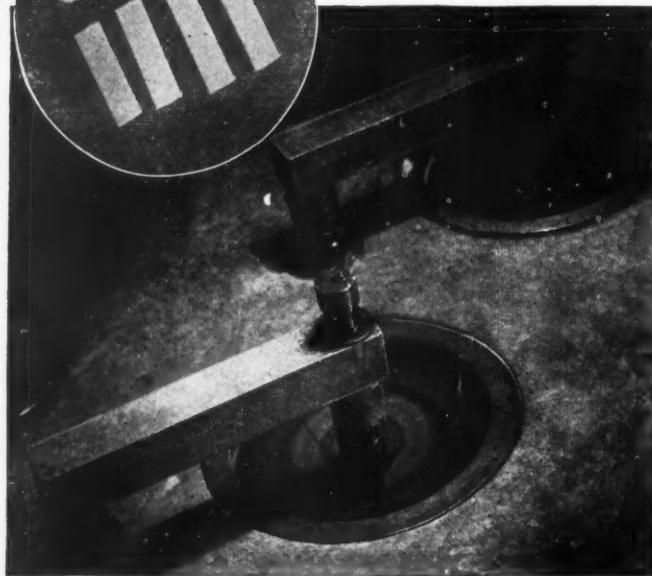
With the same scientific care a physician uses in examining human tissue, technicians in the Physical Testing Laboratory of Wickwire Spencer's Rope Mill test samples of wire imbedded in plastic "buttons." Samples from coils of wire are ground, polished, etched, microscopically examined and the findings recorded.

What's this got to do with wire rope? The grain size has an important bearing on the life span of the wire. Because the quality of the steel in the rope wire is just as important for dependable service as is the construction of the rope, Wickwire uses only such wire as passes the Physical Testing Laboratory's exacting standards.

For the utmost in performance, safety and long life, specify Wickwire Rope. It is available in all sizes and constructions, both regular lay and WISSLAY Preformed. Call on Wickwire distributors and Wire Rope engineers to help solve your wire rope problems and supply the right rope for your needs.

HOW TO PROLONG ROPE LIFE AND LESSEN ROPE COSTS

Thousands of wire rope users have found that the information packed in the pages of "Know Your Ropes" has made work easier and rope last longer. It's full of suggestions on proper selection, application and usage of wire rope. It's easy-to-read and profusely illustrated. For your free copy, write, Wire Rope Sales Office, Wickwire Spencer Steel, Palmer, Massachusetts.



WICKWIRE ROPE

A PRODUCT OF THE WICKWIRE SPENCER STEEL DIVISION OF THE COLORADO FUEL AND IRON CORPORATION

WIRE ROPE SALES OFFICE AND PLANT—Palmer, Mass.

EXECUTIVE OFFICE—500 Fifth Avenue, New York 18, N. Y.

SALES OFFICES—Abilene (Tex.) • Boston • Buffalo • Chattanooga • Chicago • Denver • Detroit • Emlenton (Pa.) • Philadelphia • Tulsa • Fort Worth • Houston • New York

PACIFIC COAST SUBSIDIARY—The California Wire Cloth Corporation, Oakland 6, California





SINCLAIR OPALINE TBT MOTOR OIL

REG. U. S. PAT. OFF.

When heavy load imposes extra demands on engines of trucks, buses, tractors and construction equipment, the motor oil must possess *extra qualities*.

Sinclair OPALINE TBT MOTOR OIL is made with special additives to fortify it against oxidation tendency under high temperatures, discouraging gum, lacquer

and carbon deposits. Special detergent qualities help keep engines clean; inhibitors protect against bearing corrosion and foaming.

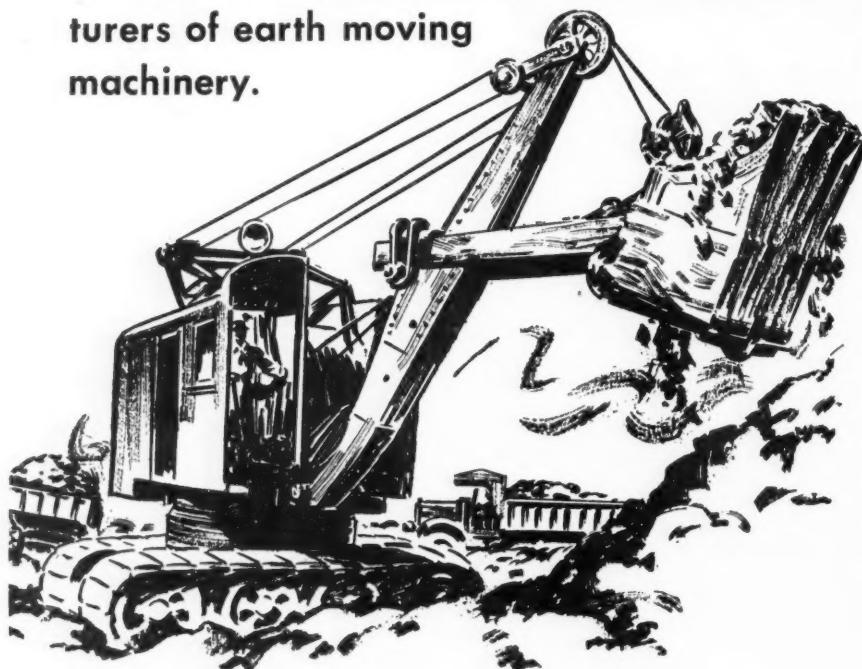
Try this *extra-duty* oil for *extra-duty service*. It's made in grades to suit varied engine designs and operating requirements.

SINCLAIR LUBRICANTS-FUELS

YOUR NEAREST SINCLAIR AGENT WILL GLADLY ARRANGE FOR LUBRICATION COUNSEL, OR YOU MAY WRITE TO SINCLAIR REFINING COMPANY, 630 FIFTH AVENUE, NEW YORK 20, NEW YORK

EASY TO WEAR-IN!

J-M INDUSTRIAL FRICTION MATERIALS
wear well from the start... are specified
as original equipment by most manufac-
turers of earth moving
machinery.



HARD TO WEAR-OUT!

J-M INDUSTRIAL FRICTION MATERIALS
wear slowly and evenly... are preferred by
operators who keep maintenance costs low.

- J-M says "stop" and "go" to more tonnage than any other friction materials.

Replace with J-M Industrial Friction Materials and get better braking performance always. You're sure of long service, high braking efficiency and economical operation. Exceptionally durable, mechanically strong, J-M Friction Materials withstand faster speeds, heavier loads, harder shocks and higher temperatures. See your J-M Friction Material distributor or write Johns-Manville, Box 290, New York 16, N. Y.

Johns-Manville
INDUSTRIAL FRICTION MATERIALS

No. 1 With Leading Manufacturers



HEAVY-DUTY TRANSMISSIONS—A 12-p. catalog contains complete specifications on unit-mounted, auxiliary and amidship-mounted transmissions. Gear ratios, weights, dimensions and other installation information are listed. Preliminary selection of transmissions may be made from the catalog. A specification sheet included should be filled out for definite recommendations by Fuller engineers. —**Fuller Manufacturing Co., Transmission Division, Kalamazoo, Mich., or Western District Office, Fuller Manufacturing Co., 1060 East 11th Street, Oakland 6, Calif.**

CLUTCH CATALOG — A 16-p. 2-color catalog covers the new Morse-Formsprag full complement overrunning clutch, the construction, development and working principle. Engineering designs are given.—**Morse Chain Co., Detroit 8, Mich.**

HOISTS—Circular covers new Clyde Frame 4 hoists—gasoline, electric and diesel with one, two or three drums. One drum can be expanded easily to two or three drums by adding drum extensions as needed.—**Clyde Iron Works, Inc., Duluth 1, Minn.**

PORTABLE GRAVEL PLANTS (12-p. booklet). Explains principle of bottom deck feed as applied to duplex crushing and screening plants for gravel. Tells why bottom deck feed doubles effective screening area and gives higher crusher efficiency through balanced crusher loads. Sets forth fundamentals of successful and profitable operation of portable gravel plants.—**Pioneer Engineering Works, 1515 Central Ave., Minneapolis 13, Minn.**

WELDED ERECTION SYSTEM—A completely new, profusely illustrated 58-p. manual containing complete engineering data on the Saxe system of welded connection units for the erection of welded steel structures, written by Van Rensselaer P. Saxe, is now being offered. Simple hook-and-eye principle of the Saxe system not only securely locks the steel members in position but its self-aligning action eliminates many hours of costly plumbing up necessary when the riveting method is employed. The manufacturer points out that the Saxe system has proved safe and dependable through wide use in scores of buildings of various types over a 15-yr. period.—**J. H. Williams & Co., 400 Vulcan Street, Buffalo 7, N. Y.**

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"Let's see the proof!"

Down-to-earth facts for trucking men who know what they want...and how they want it!

YOU'VE HEARD top trucking men say it.
You've probably said it yourself—

"I can't run my truck line on talk, I've
got to know exactly the kind of performance
I'll get *before* I buy any truck!"

Any trucking man worth his salt will agree
this is the smartest way to buy.

**That's why Reo offers you signed, sealed
and sworn Notarized Proof of
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Reo gives you NOTARIZED PROOF that
Reo trucks, with up to 15 inches less wheel-
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more maneuverable. They turn in a close,
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Reo gives you NOTARIZED PROOF that
Reo More-Load design cuts inches off the
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No other truck matches Reo More-Load
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Reo engines are readily accessible for fast,
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Reo cowl-hinged hood lifts from front
bumper line, allows mechanics extra room,
speeds their work.

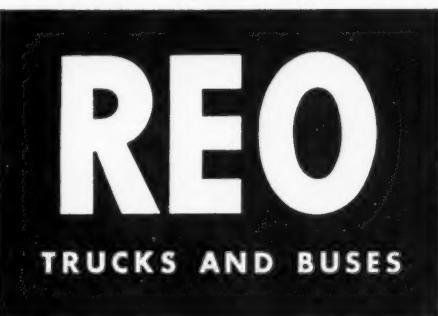
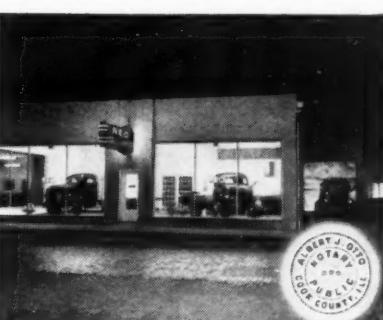
Reo gives you NOTARIZED PROOF that
Reo trucks come equipped with extra features,
such as Tocco (electric) hardened crank-
shafts, 7 main bearings, chrome-molybdenum
iron blocks, extra-gauge steel frames.

Reo gives you NOTARIZED PROOF that
the Reo line of trucks provides you with
a wide choice of ready-to-roll truck and
tractor chassis...with a variety of engines,
wheelbases, and cab-to-axle dimensions.

REO MOTORS, INC., Lansing 20, Mich.

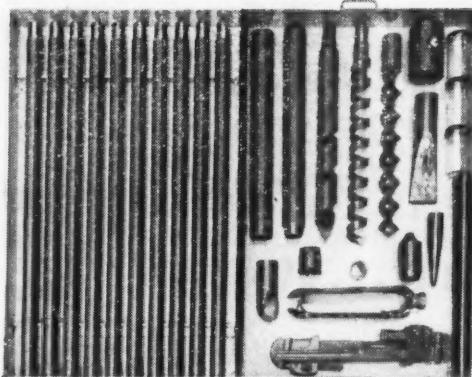


Notarized Proof! A larger percentage
of Reo trucks have been in active service
for over 10 years than any other medium
or heavy duty trucks. This means Reo
trucks last longest of any trucks in their
class.



See
your REO dealer
before you order
any truck

ACCURATE
DEPENDABLE
SUBSURFACE
INFORMATION



ACKER SOIL SAMPLING KIT

- Twelve Soil and Earth Sampling Tools in Handy Steel Box.
- Can Be Carried in Any Automobile.
- Depths Limited Only to Driving Power of Sledge or Maul.

Thirty years' experience has proved these tools will recover accurate samples from practically all earth materials.

MANY USES include aluminum silicate deposits—brick and clay materials—foundation test borings—gold bearing sands—kaolin and clay for ceramics—sand and gravel pits—sub-grade testing for highways and airfield runways—base materials.

ACKER DRILL COMPANY, INC.
SCRANTON 3, PA.

RAINCAP

New!

THE CAP THAT DOES NOT FORGET TO CLOSE

Completely automatic—the "RAINCAP" is counterbalanced to open when the tractor starts and close when it stops. Rust proof—made of cast aluminum—with bronze bushing—can be installed in two minutes. F.O.B. Waterloo, Iowa.

No.	O.D. Exhaust	Retail
1	2 1/4"	\$1.90
2	2 1/2"	1.90
3	2 1/2"	1.90
5	1 1/2"	1.90
58	2"	1.90
5x	1 1/2"	1.90
6	1 1/2"	1.90
64	1 1/2"	1.90
7	2 1/2"	1.90
8	3"	2.50
9	3 1/2"	2.50
10	3 1/2"	2.50
11	3 1/2"	2.75
115	3 1/2"	3.00
12	4"	3.00
123	4 1/2"	3.00
125	4 1/2"	3.00
14	4 1/2"	3.00

• Immediate delivery
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Write Dept. CM.

WATERLOO FOUNDRY CO., WATERLOO, IOWA

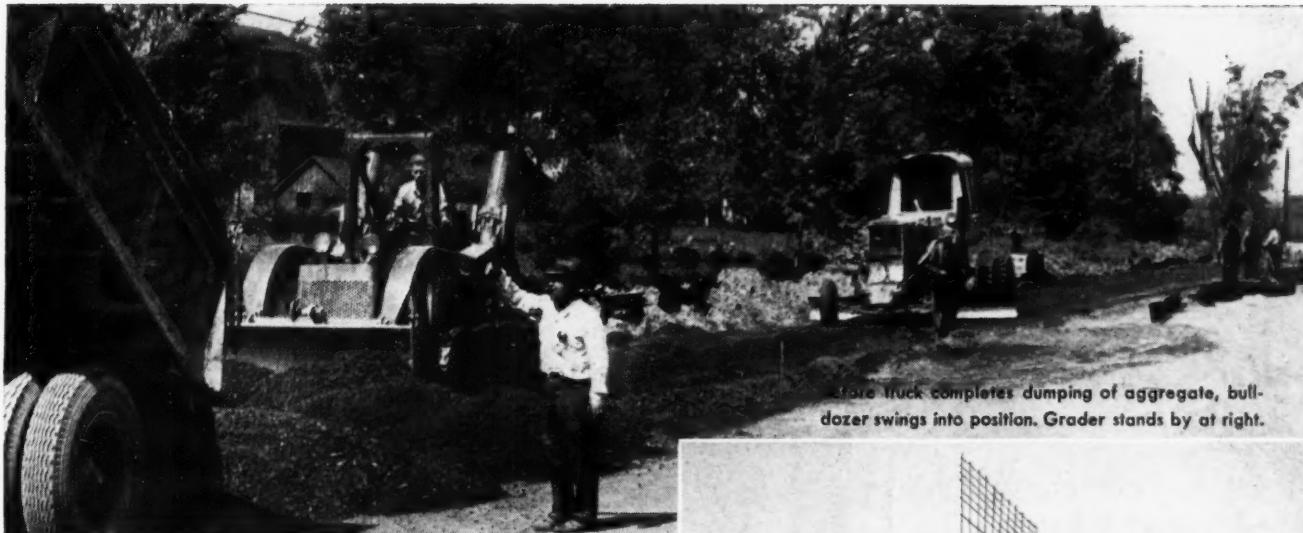
ROCK EXCAVATION FILM—New 16-mm. film in color, with sound, featuring heavy rock excavation on four construction projects, has been prepared entitled, "Man against Rock." This film is purely educational and carries no advertising throughout its 33-min. run. Prints are available for showing to schools, engineering societies and others interested. Film shows rock drilling, blasting, mucking, etc., including the grade preparation for the new location of U.S. Highway 40 in Clear Creek Canyon between Idaho Springs and Golden, Colo. Another project is the construction of the South Dam of Grand Coulee, together with the canals and tunnels of the Columbia Basin Irrigation Project west of Spokane, Wash. A third part takes up the construction of the dams, tunnels and canals of the water distribution system of the Continental Divide Tunnel near Estes Park, Colo. The last project is the Walsh Construction Co.'s section of the Electra Tunnel near Jackson, Calif., for the Pacific Gas and Electric Co.—**Advertising Department, Gardner-Denver Co., Quincy, Ill.**

STEEL FABRICATION — (32-p. booklet) Illustrated with photographs, tables and charts, this booklet is designed to supply fabricators with late and authentic information on the selection and fabrication on both solid stainless steel and stainless clad plate, whether used alone or in combination with each other.—**Allegheny Ludlum Steel Corp., Pittsburgh 22, Pa.**

DIESEL TRACTOR—A 32-p. booklet describes the features of the Caterpillar Diesel D4 tractor. It contains engineer's drawings, cutaway sectional drawings and photographs of the working parts of the tractor and pictures of the tractor at work. The company has also just released a booklet on "Turning Blueprints into Highways," and another on "Caterpillar Diesels go to Town."—**Caterpillar Tractor Co., Peoria 8, Ill.**

STAINLESS PIPING SYSTEMS—"Taylor Forge Stainless" provides a new and more economical approach to flanged piping, which the manufacturers report to have decided advantages. A 4-p. illustrated bulletin includes drawings, dimensions and prices of new type fittings and flanges, available in Stainless 304, 347, 316 and other materials.—**Taylor Forge & Pipe Works, P. O. Box 485, Chicago 90, Ill.**

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Dump truck completes dumping of aggregate, bulldozer swings into position. Grader stands by at right.

Highway Near Buffalo GETS GOING-OVER



Joseph Cerillo (left), contractor, and Gene Niland, Depew Paving Co. engineer, enjoy a hearty laugh.

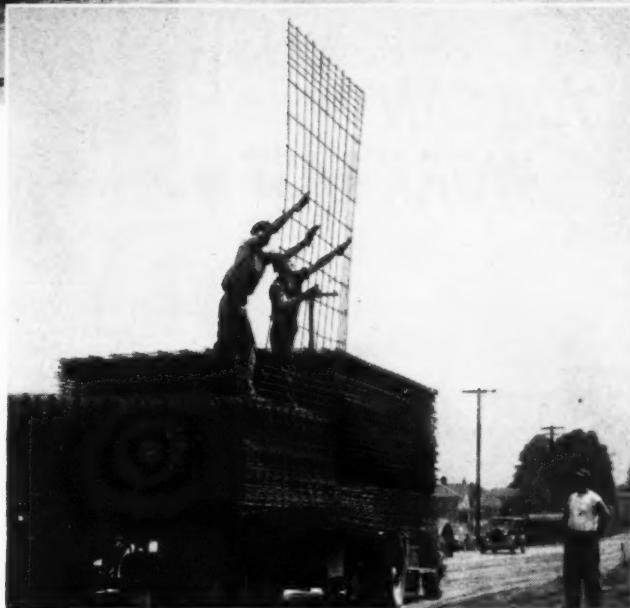
To cope with heavy traffic to and from the Buffalo area, nearly four miles of Route 20, east-west express route traversing mid-state New York, was recently rebuilt. These scenes were taken between Town Line and Alden, N. Y., and show various stages of the four-lane project. Contractor: Depew Paving Co., Depew, N. Y. More than 100,000 sq yd of bar mats were supplied by Bethlehem.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by
Bethlehem Pacific Coast Steel Corporation
Export Distributor: Bethlehem Steel Export Corporation

STEEL FOR HIGHWAYS

Dowel Units • Reinforcing Bars • Bar Mats • Guard Rail
Guard Rail Posts • Wire Rope and Strand • Pipe
Hollow Drill Steel • Spikes • Bolts and Nuts • Tie-Rods
Timber Bridge Hardware • Sheet and H-Piling
Fabricated Structural Steel



One, two, and over it goes. Bethlehem Bar Mats are unloaded from truck, adjacent to new highway.



With rough grading completed, foreman checks accuracy of formsetters. Fine grading will soon be underway.



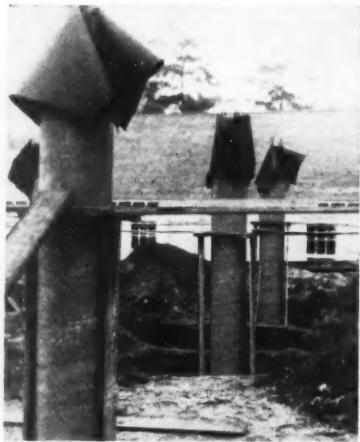
Working on heels of strike-off and finishing machines, hand finishers give new strip careful, last-minute check.

Sonotubes

PAT. APP. FOR.

FORM CONCRETE PIERS AND COLUMNS
BETTER! CHEAPER! QUICKER!
HERE'S HOW.

YOU CAN
WORK FAST



RESULTS ARE
PERFECT

No patch work necessary
with SONOTUBES. They're
for one-time use and can
be left on or easily strip-
ped off.

ECONOMICAL TO USE

6 STANDARD SIZES IMMEDIATE DELIVERY LENGTHS UP TO 24 FEET

INSIDE DIAMETER					
8"	9"	10"	11 1/4"	12"	13 1/2"
50.26	64	SQUARE 78.54	INCHES 100	113.1	144

WRITE FOR DELIVERED PRICES

SONOCO PRODUCTS COMPANY
HARTSVILLE, S. C.
ROCKINGHAM, N. C.
MYSTIC, CONN.
GARWOOD, N. J.
LOWELL, MASS.



ASPHALT ROOFING—A 35¢ 84-p. manual on manufacture, selection and application of asphalt roofing products is available from member companies of—The Asphalt Roofing Industry Bureau, 24 W. 45 St., New York, N. Y.

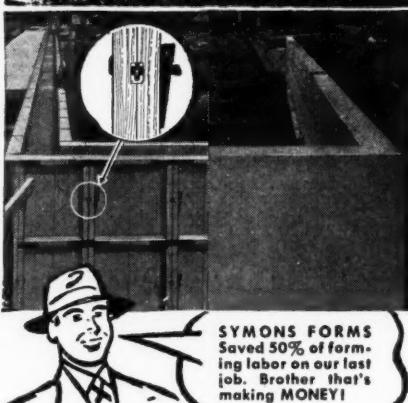
PORTABLE BATCHING PLANTS

A colorful 24-p. catalog, using more than 65 actual photographs, schematic drawings and specification charts, presents numerous cost-cutting ideas for aggregate and cement handling arrangements. Besides setting forth the general requirements for a typical roadbuilder's plant, the booklet has a complete discussion of various cement and aggregate-batching methods and equipment. Typical plant layouts are depicted in color sketches to illustrate time and labor-saving features.—The C. S. Johnson Co., Champaign, Ill.

LIGHTWEIGHT AIR HOSE—A 4-p. broadside on a lightweight air hose for small pneumatic tools pictures and describes the new air hose, which is as flexible as a lamp cord, and has many uses.—The B. F. Goodrich Co., Akron, Ohio.

SPEED

STEP-UP Your Jobs
CUT-DOWN Your Costs



The simple wedge clamp illustrated above holds forms together, as well as the ties between forms. This eliminates the use of nails, spreaders or band irons, and requires the use of only one waler. The forms last 50 to 100 reuses without repair. Symons Forms can be rented with purchase option or you may purchase the hardware with blueprints to make your own forms. WRITE TODAY for our big free booklet which completely describes the Symons forming system and accessories.

SYMONS CLAMP & MFG. CO.

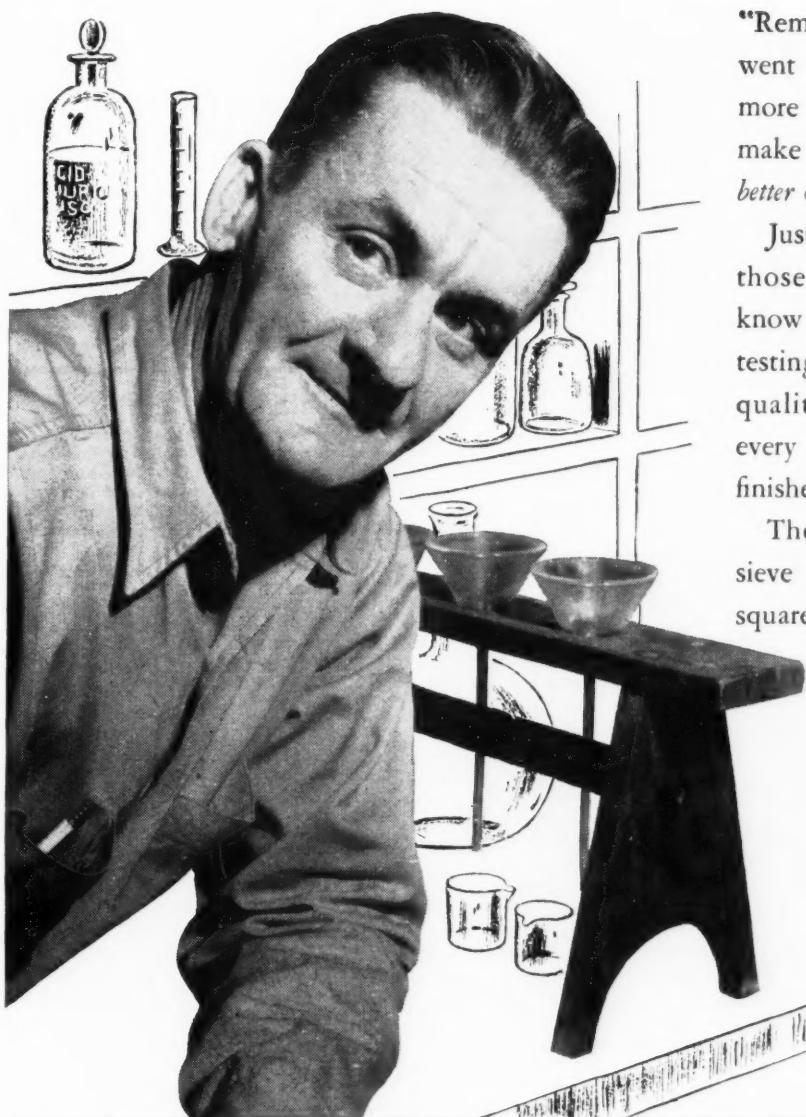
4255 DIVERSEY AVE.



CHICAGO 39, ILLINOIS

4-p.
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"The final test is a tough one"



"Remember, Cliff," said my boss the day I went to work as sample boy for Cumberland more than 20 years ago, "'most anybody can make cement. What *we've* got to do is make better cement."

Just how far we've gone to make good on those words is something you could never know without actually visiting the Cumberland testing laboratory and watching us work. The quality of Cumberland Cements is guarded every step of the way from raw materials to finished product.

The final test is a tough one. We have a sieve with more than 105,000 openings per square inch—so close-meshed it actually holds water. Finished cement must pass right through that screen leaving no more than 22% residue—or it's not good enough to be Cumberland Cement.

LAWRENCE C. ("CLIFF") FOXALL
SENIOR ANALYST

Cumberland
PORTLAND CEMENT COMPANY
Chattanooga Bank Building • • • Chattanooga 2, Tenn.

PORLTAND • HIGH EARLY STRENGTH • AIR ENTRAINING • MASONRY

CUT COSTS... SPEED WORK with this steel sheeting



ARMCO Steel Sheet is ideal for trenches, core walls, cofferdams, bulkheads, bank protection, low retaining walls and other similar uses.

Light weight and a small displacement area make ARMCO Steel Sheet a fast-driving, cost-cutting tool on either temporary or permanent construction. You'll like the way it saves you time and money.

Both interlocking and flange type ARMCO Sheet can generally be driven to full penetration before excavation. The corrugated metal design assures ample strength without excess bulk. It means easier handling, faster driving and lower costs.

Another big advantage is that on temporary jobs ARMCO Sheet can be readily pulled and used over and over again. A convenient slot near the top of the section makes pulling easy.

There is no problem in hauling or storing ARMCO Steel Sheet. Sections nest together and save space. Interlocking type sheeting is available in gages 12 to 7; flange type in gages 12 to 3. Standard lengths are from 6 to 20 feet or more in multiples of 2 feet. Write for prices and complete information. Armco Drainage & Metal Products, Inc., 1285 Curtis St., Middletown, O.

**ARMCO
STEEL SHEETING**



EQUIPMENT MEN and Their Companies

Current developments among manufacturers relating to expansion of services, shifts in personnel, and other changes, include the following:

SALES—American Steel & Wire Co., Cleveland, Ohio, has created a new and separate sales division for electrical wire and cable products with T. N. Peterson as manager of sales. Walter E. Mackley is manager of the N.Y. district sales office . . . H. B. Garber is now general sales manager of The Thew Shovel Co., Lorain, Ohio, and Q. J. Winsor and J. T. Cushing are assistant general sales managers . . . Kenneth E. Sabine has become assistant sales manager in charge of advertising for the Byers Machine Co., Ravenna, Ohio . . . Ray R. West is manager of sales for Minneapolis - Honeywell Regulator Co. products for industrial applications . . . Everett Manufacturing Co., Inc., Phoenix, Ariz., has placed the national distribution of the Everett trenches with The Tractor Sales Corp., Los Angeles . . . Ralph L.

(Continued on page 128)



Self-Loading Floats

**GET THE JOB DONE with
LESS Labor, Equipment, Time!**

Loading and unloading heavy machinery is made easy with the HOBBS Self-Loading Float. Can be lowered into easy grade ramp position with truck winch—loading and unloading then simple as illustrated by top photo (or by using truck winch line with truck backed up to rear of float.) Single and tandem axle models.

WRITE FOR FOLDER "SLF"

HOBBS MANUFACTURING CO.
Dept. M 609 North Main St. Fort Worth, Texas
Factory Sales and Service Also in
Houston San Antonio Dallas Lubbock

How to REMODEL HOUSES

*This book
shows you —*

- How to inspect and evaluate an old house for modernization possibilities.
- How to make plans, sketches, and detailed working drawings.
- How to do all kinds of residential construction work from bricklaying to painting.

Just Published!

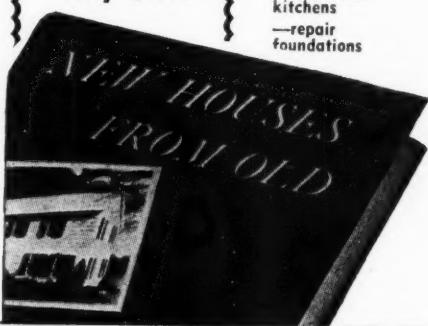
NEW HOUSES FROM OLD

By R. R. Hawkins
Chief, Science and Technology Division,
New York Public Library
and C. H. Abbe
American Institute of Architects

Here's your guide to low-cost modernization . . . a new book that shows you how to plan and do remodeling work on any type of dwelling. It shows you how to go about checking foundation, framework, etc. for structural flaws—how to develop complete, practical plans—and how to do the entire job yourself. Over 300 how-to-do-it drawings bring you the professional techniques of bricklaying, floor-laying, window construction, plumbing, wiring, roofing, and other major alteration procedures, plus methods for quick interior jobs, papering, painting, and linoleum installation.

Shows you how to—
—plan new rooms in
basement or attic
—lay asphalt tile
—lower ceilings
—install bathrooms
—construct sewage
disposal systems
—build fireplaces
—modernize
kitchens
—repair
foundations

558 pages, over
300 drawings
Only \$4.95



10-DAY FREE TRIAL

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330 W. 42nd St., NYC 18

Send me Hawkins and Abbe's **NEW HOUSES FROM OLD** for 10 days' examination on approval. In 10 days I will remit \$4.95 plus a few cents postage or return book postpaid.

Name

Address

City, Zone, State

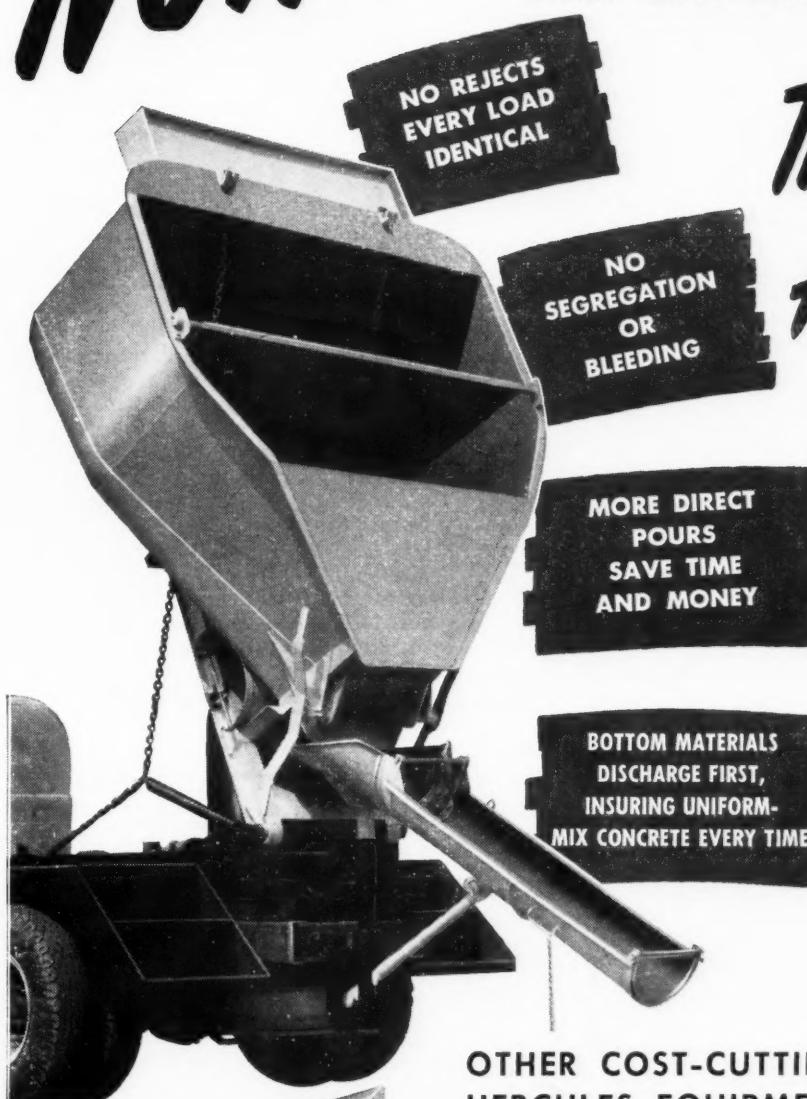
Company

Position

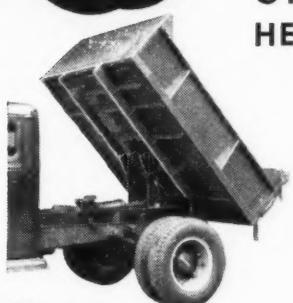
CM-10-48

Now...

A Revolutionary New Method of Hauling and Placing AIR-ENTRAINED CONCRETE!



OTHER COST-CUTTING HERCULES EQUIPMENT



Hercules D-12 Contractor's Body, sturdy unit for all-around work. Pyramid-type enclosed steel side braces and full-length rub rails for maximum strength.



Heavy Duty unit, equipped with Hercules Type X Hoist, for installation on straight or drop-frame trailers. Square and round-nosed models.

LIFT WITH EASE—

USE

Hercules

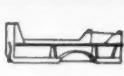
STEEL PRODUCTS CORPORATION • GALION, OHIO



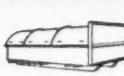
HYDRAULIC
HOIST



CONTRACTOR
BODIES



LOW-MOUNT
BODIES



GARBAGE
BODIES



COAL
BODIES



TRAILER
BODIES



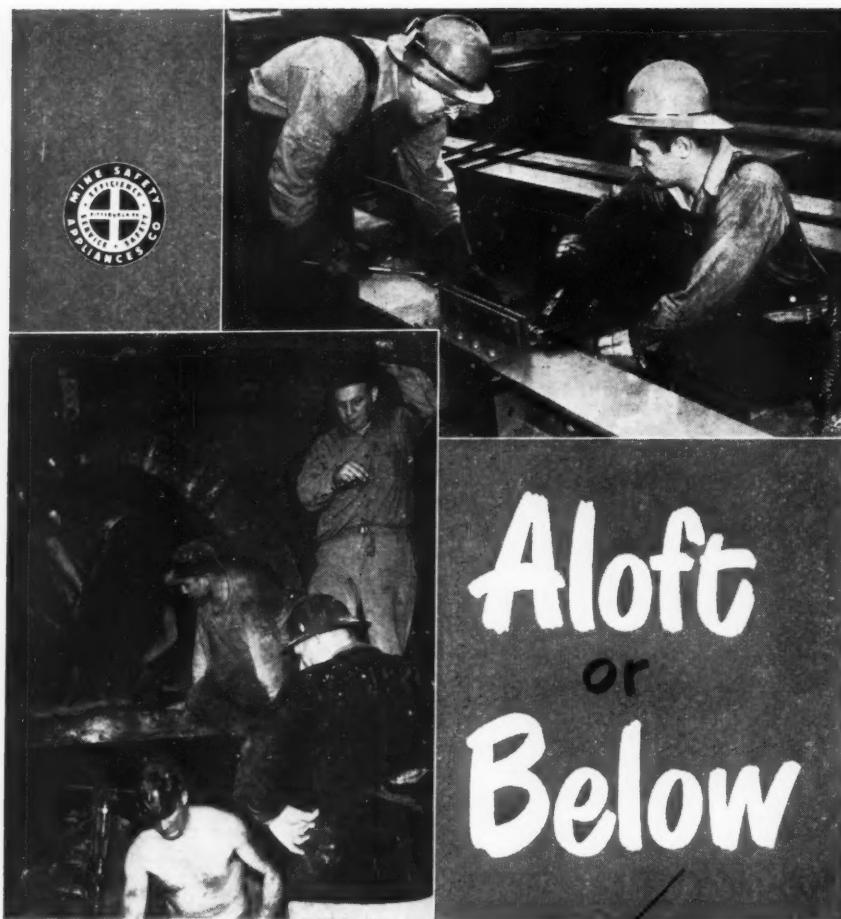
CONCRETE
BODIES



LIME
SPREADERS



POWER CHUTES
AND LOADERS



Aloft or Below

it's M·S·A

SKULLGARDS

for better Head Safety!

On every construction job where the danger of falling objects, obstructions or confined spaces expose heads to injury, M.S.A. Skullgards provide proved, dependable protection!

Used by the hundreds of thousands throughout the construction industry, these favorite work hats interpose the high fracture-resistant strength of high-pressure molded, laminated bakelite between danger and the worker's head—correctly designed with high crown for ample head clearance; shock-absorbing inner head cradle; flexible long-wearing sweatband; self-ventilation coolness.

M.S.A. Skullgards are non-deteriorating from exposure to water, perspiration, grease, or common chemicals, have a high dielectric strength, and are available in all standard or adjustable hat sizes. Write for details on these light-weight, easy to wear work hats—ask for Bulletin DK-13.

MINE SAFETY APPLIANCES COMPANY

Braddock, Thomas and Meade Streets • Pittsburgh 8, Pa.

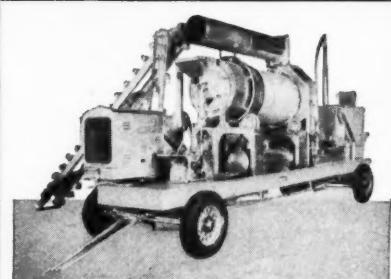
District Representatives in Principal Cities

In Canada: MINE SAFETY APPLIANCES COMPANY OF CANADA LIMITED, TORONTO
MONTREAL • VANCOUVER • CALGARY • WINNIPEG • NEW GLASGOW, N.S.

(Continued from page 126)

Wolf is central district sales manager for the Buffalo-Springfield Roller Co. of Springfield, Ohio, with headquarters at Columbus . . . Robert H. Groman has been appointed to the board of regional sales supervisors of the Eutectic Welding Alloys Corp., 40 Worth St., N.Y. City . . . A 10 days sales conference and instructional course was held recently by the Waterbury Tool division of Vickers, Inc., in Waterbury, Conn. . . . A. Kolstad of Kolstad Engineering and Sales Co., 33 Giralta Walk, Long Beach 3, Calif., has been made sales representative for Thomas C. Wilson, Inc., manufacturers of tube cleaning equipment . . . David A. Werblin, a M.I.T. graduate, has been made northeastern territory sales engineer for Griffin Wellpoint Corp. Frank J. Smith is advertising and sales promotion manager of the Philip Carey Mfg. Co., Cincinnati, Ohio . . . Gerald T. Haddock is American sales representative of Lafarge Aluminous Cement Co., Ltd., of London, England, with temporary headquarters at 311 E. 72nd St., New York 21, N.Y. . . . R. K. Gottshall, formerly director of sales of the explosives department of Atlas Powder Co. is now assistant general manager and is succeeded by W. E. Collins, Jr. Both

(Continued on page 130)



PORTABLE ASPHALT PLANTS

Complete units for pavement maintenance. Capacities—4, 8, 12, 25 tons per hour.

Other Products

CONCRETE VIBRATORS

Gasoline Engine and
Electric Motor Driven Models

HEATING KETTLES

for Asphalt and Tar

AGGREGATE DRYERS

for Stone and Sand

FRONT END LOADERS

for Industrial Tractors

WRITE FOR CIRCULARS

White Mfg. Co.

ELKHART

INDIANA

1600 sq. yds. per hour PERFECTLY PROCESSED



2 SEAMAN PULVI-MIXERS

SPEED SOIL-CEMENT JOB . . .

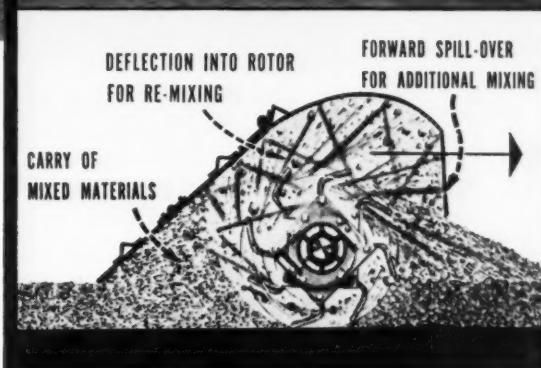
On this Illinois, 5-mile soil-cement highway, two Seaman Pulvi-Mixers thoroughly processed an average of 1600 square yards per hour, to a depth of 6". A remarkable performance, but not unusual when a Seaman is on the job. But high production is only part of the story. The quality of mix is most important. The Seaman Mixer making multiple passes pulverizes, mixes and remixes materials to obtain a uniform blending impossible by any other method. The high velocity rotor assures perfect mixing and blending—vertically, laterally and longitudinally, from the sub-grade to the surface over the entire processing area.

Not only will a Seaman do more and better work, but it will do so at lowest cost per yard. Your equipment investment is lower—operating and maintenance costs are lower, and a Seaman is a more profitable investment because of its flexibility and versatility. For any type of stabilizing job...

bituminous, soil-cement, aggregate, or soil-binder . . . a Seaman is your best buy.

NEW SOIL-CEMENT BOOKLET

Send for latest information on soil-cement processing. Shows simple step-by-step procedures. Ask for New Bulletin #50.



BETTER MIXING AT LOWER COST

1. VERTICAL — Terrific rotor speed sweeps sub-grade clean, lifts soil and throws it in every direction, breaking it into minute particles for thorough blending with binder from top to bottom.

2. LATERAL — Pitch and curvature of tines throws material back and forth laterally to equalize the blend within the entire width of the mixer.

3. LONGITUDINAL — A considerable portion of the material is carried forward over the rotor frequently as far as 50 feet to be continuously remixed, assuring uniformity of texture longitudinally.

4. SELECTIVE — Aggregate distribution is more uniform between coarse and fines, leaving a blanket of fines over the entire top surface.

SEAMAN MOTORS, INC.

LIGHTER →

STRONGER

WELLMAN
Williams Type
BUCKETS

Stronger because they're constructed of **welded rolled steel** . . . *lighter* because non-essential weight has been eliminated. Wellman buckets meet every requirement of heavy service with longer life and lower cost! A type for every service: Multiple Rope, Power Arm, Dragline, Power Wheel, Special Service. $\frac{3}{8}$ to $16\frac{1}{2}$ yd. capacity.

SEND FOR BULLETIN

THE WELLMAN ENGINEERING COMPANY
7017 CENTRAL AVENUE • CLEVELAND 4, OHIO



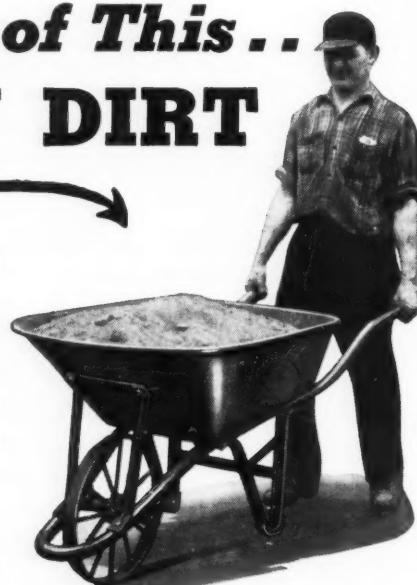
"Now remember . . . don't waste any more of the company's time hovering around nudist colonies."

(Continued from page 128) will be at the Wilmington, Del., office. **G. W. Thompson** is transferred from the New York to the Seattle office as manager of the district sales office . . . **C. R. Fischer** is sales representative for New Jersey and the eastern half of Pennsylvania for the **Geo. P. Reintjes Co.**, Kansas City, Mo. . . . **G. C. Stafford** has joined the sales staff of **McCullough Tool Co.**, Los Angeles, Calif. . . . **Sherrill S. Deputy** is sales manager of **American Wheelablator & Equipment Corp.**, Mishawaka, Ind. . . . **John E. Meroney** is district sales manager at St. Louis for **Inland Steel Products**, Milwaukee . . . **Lew Krafts** is vice-president and general sales manager of the **Universal Motor Co.**, Oshkosh, Wis. . . . Salesmen of the building material sales division of the **Paraffine Companies, Inc.** for 11 western states recently attended a sales conference at the home office in San Francisco . . . **Eastcoast Equipment Co. Inc.**, Garwood, N.J., is the new sales agent for **Lima Shovel and Crane** division in northern New Jersey . . . **Robert R. Rector** is district representative for **The American Coach & Body Co.**, Cleveland, Ohio, for the southern division . . . **C. M. Baumgardner** is vice-president for sales of the **National Radiator Co.**, Johnstown, Pa., in place of president **John C. Barnes**, resigned . . . **G. Luke Mizell** has been appointed to the board of regional sales supervisors of the **Eutectic Welding Alloys Corp.** in the middle and south Atlantic states and **Wm. R. Bajari** in the western region . . . **R. R. Board**, formerly district sales manager at Chicago for the **Union Wire Rope Corp.** is now sales manager for **Tuffy Slings** at 21st and Manchester, Kansas City, Mo. . . . **A. E. Johnson**, formerly assistant field sales

(Continued on page 132)

Get a Load of This . . . It's PAY DIRT

Whether in the Klondike or on one of your everyday material handling jobs . . . every load is "PAY DIRT" in a Sterling Wheelbarrow. This efficient, low cost method of material transport earns extra profits. Balanced design relieves the operator of 80% of the load . . . assures faster, easier wheeling of heavy loads. Sturdy, all-steel construction prolongs the life of the barrow. Try a Sterling Wheelbarrow for your next material handling job. You'll find it pays off in profits.



Sterling Tubular Framed Barrow — all-welded, no rivets, lapped at corners. Steel reinforcing rod around top edge.

STERLING WHEELBARROW CO., Milwaukee 14, Wis.



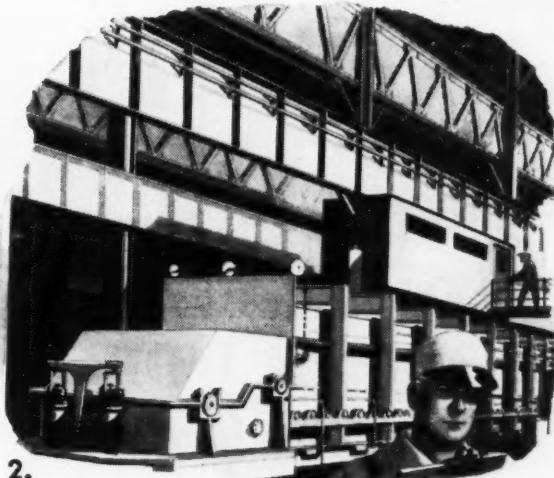
Look for this Mark of
STERLING Quality

Hot ideas mean cold cash for you!



1.

"Shut 'er down!" How steel makers hated those words. For every shut-down caused by failure of the steel feeding mechanism made ton-costs mount. High temperatures, giant loads and speed—all major factors in feeding steel to heat-treating furnaces—had bad effects on power transmission equipment. Sit and wait? Not steel makers! They swung into action to beat the heat. They consulted . . .



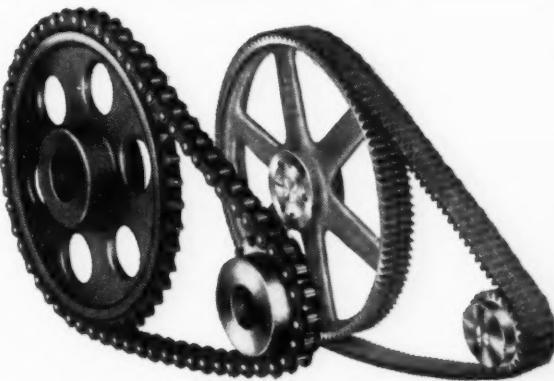
2.

Morse Chain Engineers, who helped solve their whale-sized power problem by installing Morse Roller Chain and Sprockets. Tough, fast-moving, easily maintained Morse Roller Chain now does a superb job of positive power transmission in many steel mills. Similar jobs call for quiet, powerful Morse Silent Chains and Sprockets. Both types of Morse Chain practically eliminate power losses and costly replacements. Possibly . . .



3.

Morse Roller or Silent Chain can be used on your product or in your plant. Ice cream machinery manufacturers use it on *their* products. So do manufacturers of machine tools, petroleum equipment, agricultural equipment, cranes, fans, hoists, conveyors and many, many other products. The use of Morse equipment on your products will add much to their value and sales appeal. So, don't wait . . .

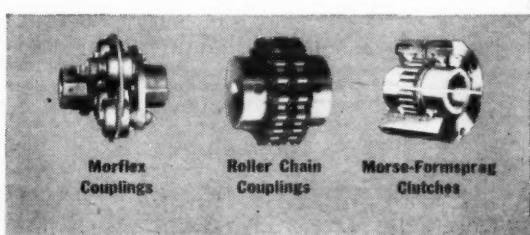


4.

Roller Chain

Silent Chain

Write us now for the very latest information on Morse Chain equipment. Send for Silent Chain Catalog C71-48, and Roller Chain Bulletin B57-47. Address Morse Chain Company, Dept. 227, 7601 Central Ave., Detroit 8, Michigan.



MORSE

MECHANICAL
POWER TRANSMISSION
PRODUCTS



Morse-Rockford
Friction Clutches

MORSE CHAIN COMPANY • DETROIT 8, MICHIGAN



CONSTRUCTION MEN AT WORK

use



INDUSTRIAL
TRACTORS

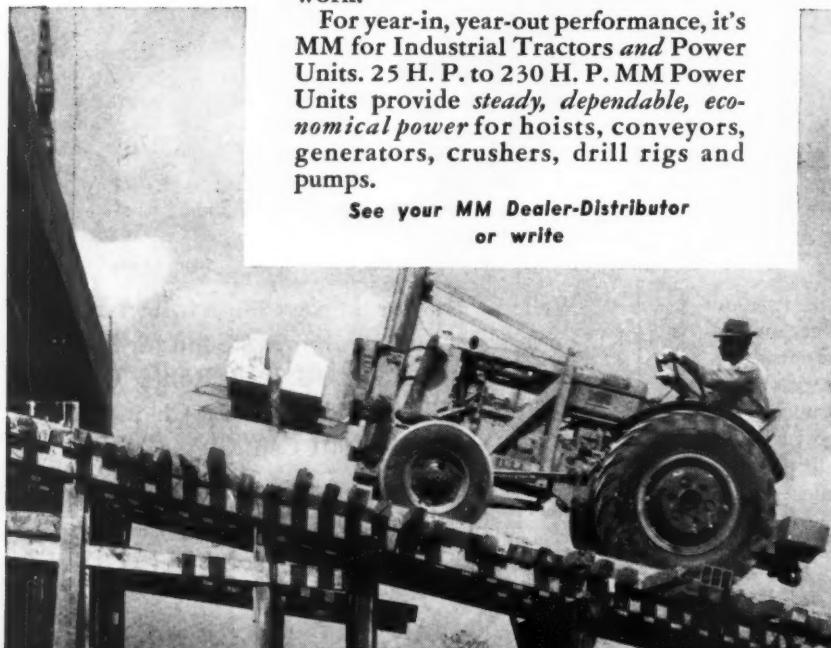


Contractors' preference for MM Industrial Tractors is accounted for by MM's rugged dependability, all-round utility and outstanding economy!

MM Industrial Tractors are Built to Do the Work . . . all kinds of work . . . easily, economically, profitably! Winch, front-end loader, crane, rotary broom, pull-behind scraper, dozer blade, wide range of tire sizes to suit all types of work and other engineered attachments equip the 27 H. P. RTI and the 49 H. P. UTI for a wide variety of construction work.

For year-in, year-out performance, it's MM for Industrial Tractors and Power Units. 25 H. P. to 230 H. P. MM Power Units provide steady, dependable, economical power for hoists, conveyors, generators, crushers, drill rigs and pumps.

See your MM Dealer-Distributor
or write



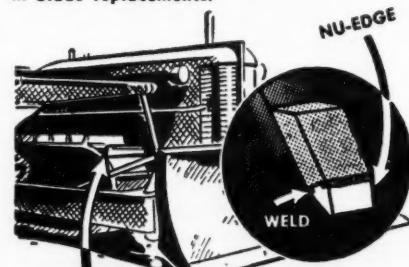
MINNEAPOLIS-MOLINE
POWER IMPLEMENT COMPANY
MINNEAPOLIS 1, MINNESOTA

(Continued from page 130)
manager of the **Four Wheel Drive Auto Co.**, has been named supervisor of government sales. C. A. Rogers, who has specialized in fire truck sales has been named supervisor in that market. Lloyd Scheider, formerly assistant to General Manager Robert A. Olen is supervisor of defense sales. Leo Polzin, formerly field sales manager, has been appointed manager of national accounts. Stanley Wick, formerly manager of the order department, has been appointed assistant director of sales in charge of all office domestic sales; and Jack Kelly, formerly assistant field sales director, has been appointed assistant director of sales in charge of administration of the field organization. John Batten, sales supervisor in northern California and Idaho, has been named acting manager of the western sales zone. Howard Collard, formerly sales supervisor in Oregon and Washington, has been named acting zone manager in the southeastern states.

PERSONALITIES — Lawrence W. Early resident manager of the Los Angeles office of **Hercules Powder Co.**'s explosives department, has been transferred to the Salt Lake (Continued on page 134)

SAVE \$ and INCREASE TRACTOR POWER

The Bulldozer Blade Nu-Edge Bar is butt-welded to new or worn blade and welding head covered with a thin layer of hard-surfacing electrode—Affording 2000% savings in blade replacements.



BULLDOZER TRACTOR GRIP-LUGS
are easily welded to any size grouser shoe without dismantling assembly. Made of special work hardening steel which becomes tougher with use—outwearing original grouser.

SEE YOUR LOCAL DEALER
Send for Folder CM Today.

SOLE PRODUCERS
ALLIED STEEL PRODUCTS, INC.
7835 BROADWAY • CLEVELAND 5, OHIO

Drive
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truck
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Man-
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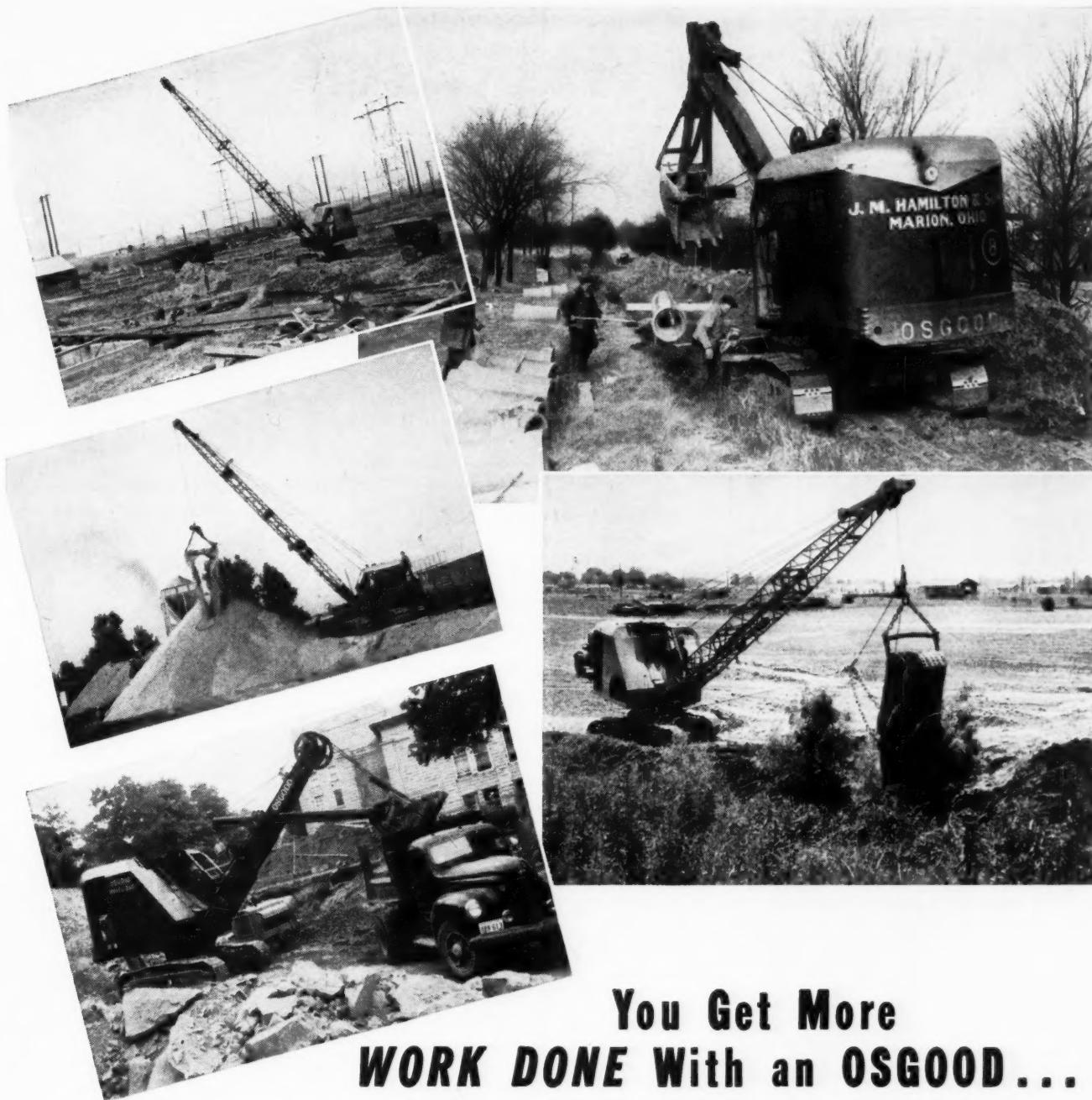
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You Get More **WORK DONE** With an OSGOOD...

"WORK DONE" is the best measure of value. Put an OSGOOD in any kind of service and watch it perform. Check its efficiency, its speed, its versatility; observe its maneuverability, its ease of operation, the minimum amount of service it requires as a Shovel, Dragline, Crane, Clamshell, or Hoe. Compare its total

yardage, its low cost of operation with that of any comparable equipment—that's the real test. Yes, whatever the job, you'll do it best with an OSGOOD.

Gasoline, Diesel or Electric powered . . . $\frac{3}{8}$ to $2\frac{1}{2}$ cu. yds. Crawlers or Mobilcranes. Write for descriptive literature and specifications.

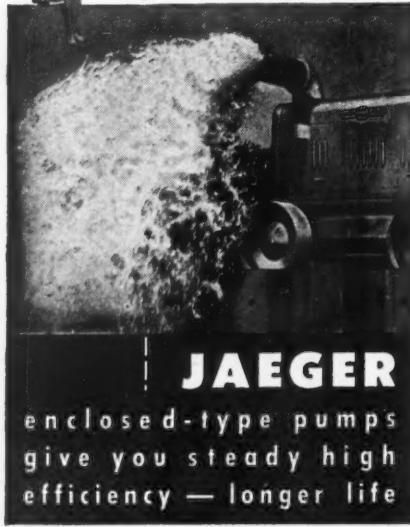
POWER SHOVELS • CRANES • DRAGLINES • CLAMSHELLS • BACKHOES • PILE DRIVERS

THE OSGOOD CO.  **THE GENERAL CO.**
EXCAVATOR

DIESEL, GASOLINE OR ELECTRIC POWERED • $\frac{3}{8}$ TO $2\frac{1}{2}$ CU. YD. • CRAWLERS & MOBILCRANES



**Here's how
to handle
water—**



JAEGER

enclosed-type pumps
give you steady high
efficiency — longer life

To a better engineered, more amply powered, conservatively rated line of pumps, Jaeger has added all-weather protection of all heavy duty models of 2" to 10" size — for sustained efficiency of pump and engine, extra hours of smooth, dependable performance, plus easy accessibility at all times.



**2" and 3" Heavy
Duty:** Most rugged
small pumps built.
Conservatively
rated @ 10,000
and 20,000 g.p.h.



4" to 10" Portables:
Compact, extra
powerful units of
40,000 to 240,000
g.p.h. rating and
exceptional air
capacity.



**Self-Priming
Super-Jet Pump:**
Extremely compact,
yet outperforms old,
heavy types.
Pressures to 250
lbs.; 90 h.p.
engine.
Only 30
seconds to prime
@ 20 ft.

Only Jaeger Offers All These
Inherent priming action plus "jet"
priming — doubly sure and fast . . .
long-life "Lubri-Seal," accessible for
inspection . . . self-cleaning shell design . . .
replaceable liners or seal rings . . .
Every pump tested and certified for
performance.

Sold, Serviced in 128 Cities

THE JAEGER MACHINE CO.
Main Office, Factory, Columbus 16, Ohio

1504 Widener Bldg. 226 N. La Salle St.
PHILADELPHIA 7, PA. CHICAGO 1, ILL.
235 American Life Bldg., BIRMINGHAM 1, ALA.

(Continued from page 132)

City office, and he will be succeeded at Los Angeles by Robert W. Crabtree . . . J. A. Greenland has been appointed district manager of the Seattle, Wash., office of the DeLaval Steam Turbine Co., Trenton, N.J. . . . Fred L. White, former chief engineer of the Osgood Co., Marion, Ohio, is new development and consulting engineer . . . E. F. Goodner, formerly of Portland, Ore., has been appointed executive vice-president of the American Gilsonite Co., succeeding C. F. Hansen, who has been named president of Calmara Oil Co. of New York, subsidiary of Standard Oil Co. of California. At Portland, Goodner was manager of the California Asphalt Co. during construction and initial operations of the plant there. He plans to make Salt Lake City his headquarters as the American Gilsonite Co. is located there. . . . Richard J. Sheridan has retired as president of the John B. Astell Co., 90 West Broadway, New York, N.Y., his interests having been acquired by John B. Astell who now becomes president of the company, warehousing distributor of stainless steel pipe, tubing and accessory valves and fittings, carbon steel welding fittings and flanges, pressure vessel fittings, and boilered condenser tubes . . . G. L. Harman, Jr.,

(Continued on page 136)

**ROCKETS
building
progress**

SKY HIGH

**THE BEAMISH
BRICKLAYING
GUIDE RAIL**

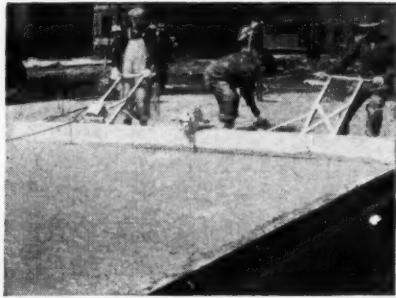
Urgent need for reconstruction in bombed Britain prompted the invention of the bricklaying invention. Practical, accurate; tests have proved that unskilled labour can lay 100 bricks in 1/2 hour. Speed up YOUR bricklaying. Send NOW for details.

British and foreign
Pats. pending

Price, Complete Set, \$66.98.
Sample Set (Part of complete
set) \$29.65. Packing Case, \$5.4.
\$3.3 F.O.B.

L.S. BEAMISH

SHOREHAM COURT, SHOREHAM-BY-SEA
SUSSEX, ENGLAND



SYNTRON
**CONCRETE FORM
VIBRATORS**

pulsating electromagnets — no
motors, cams, gears or eccen-
trics—equipped with a quick-act-
ing vise clamp.



**SAVE
TIME**

—in the placing and settling of
concrete in wall forms — pipe
forms — on paving machine
screeds, and on floor and deck
hand screeds.

Syntron vibration produces
stronger, denser concrete with
less absorption, and assures
complete filling in and around
reinforcing, girders, etc.

Write for literature

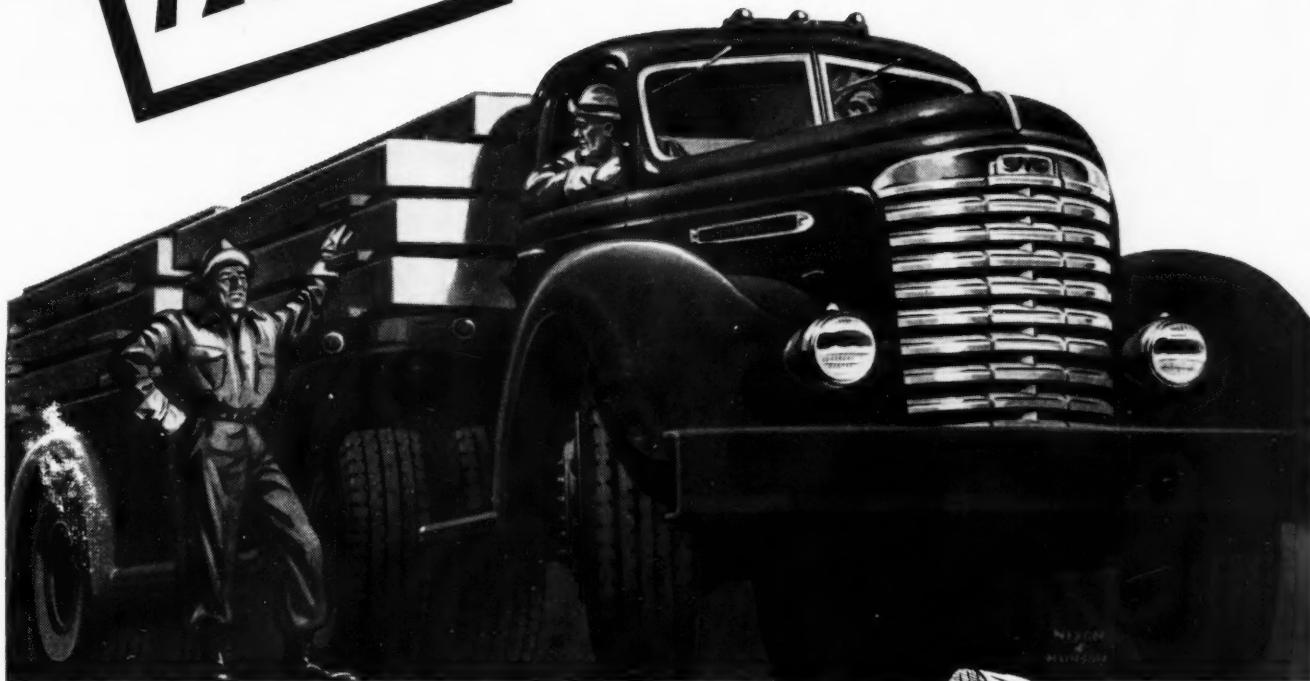
SYNTRON CO.

500 Lexington Homer City, Pa.



GMC
SERIES
720 AND 800

Winning Numbers FOR HEAVY HAULERS



Here's good news for operators hauling heavy loads of milk, petroleum, machinery... logs and lumber... stone and ore... furniture and freight. Substantial production of GMC 720 series Specialized Tractors and 800 series straight truck models, assures quick delivery.

GMC 720 series tractors have gross combination weight ratings of 40,000 pounds... the 800 series trucks have gross vehicle weight ratings of 30,000 pounds. Both are offered in wheelbases of 136 to 196 inches, with cab-axle dimensions of 60 to 120 inches. Both have big 426 cu. in. engines of the same basic design as the war famous "Army Workhorse." Both have many other features specific to the jobs for which they are built.

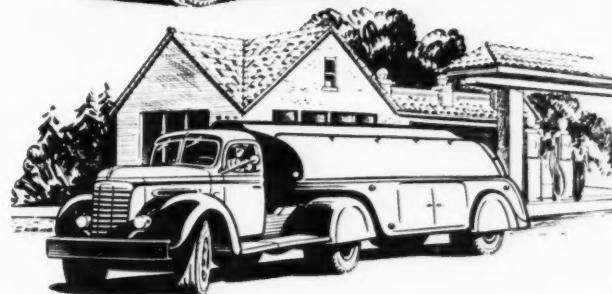
If you need a new truck in either classification, put your money on one of these all-truck, heavy duty GMCs.

GMC TRUCK & COACH DIVISION • GENERAL MOTORS CORPORATION

THE TRUCK
OF VALUE

GMC
TRUCKS

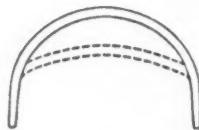
GASOLINE
• DIESEL





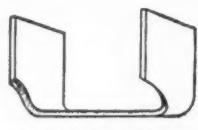
First in the Field!

WITH FEATURES LIKE THESE



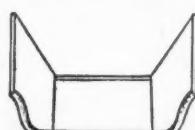
HIGHER ARCH

Gives greater clearance for digging and dumping. Carries a bigger load.



CONTINUOUS LIP

Special tough rolled alloy steel extends to bucket top on both sides. Strengthens the whole front end.



WEDGE SHAPE

Digs easier — dumps cleaner. Fills with a shorter pull—load slides out through the wide arch.

DRAKE-WILLIAMS-MOUNT • OMAHA, NEBR.

RENT A THOMAS HOIST

For Your Building Jobs

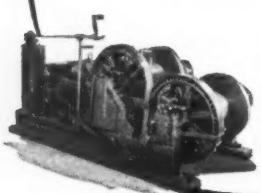
Direct From the Manufacturer

Since 1873, Thomas-built hoists have been designed for dependable, economical service.

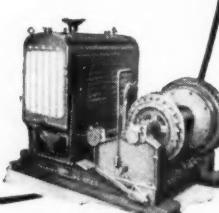
NOW AVAILABLE—IN STOCK

The Thomas patented "Band Friction" grips positively, releases easily—**ELIMINATES OPERATOR FATIGUE**. The Thomas patented "Back-Up" brake requires no power, sets and releases automatically. **QUICKLY INTER-CHANGEABLE PARTS**, and **PROMPT, DEPENDABLE SERVICE** means Thomas Hoists Keep the job Going. One, two or three drum hoists up to 100 H.P. gasoline or electric powered.

Write **NOW** for **NEW FOLDER No. 101** showing in detail the trips per hour normally obtainable with the various types of Thomas Hoists that are engineered to fit a particular job.



THOMAS HOIST CO.
22 S. HOYNE AVENUE
PHONE SEELEY 0303
CHICAGO 12, ILL.



Construction Methods



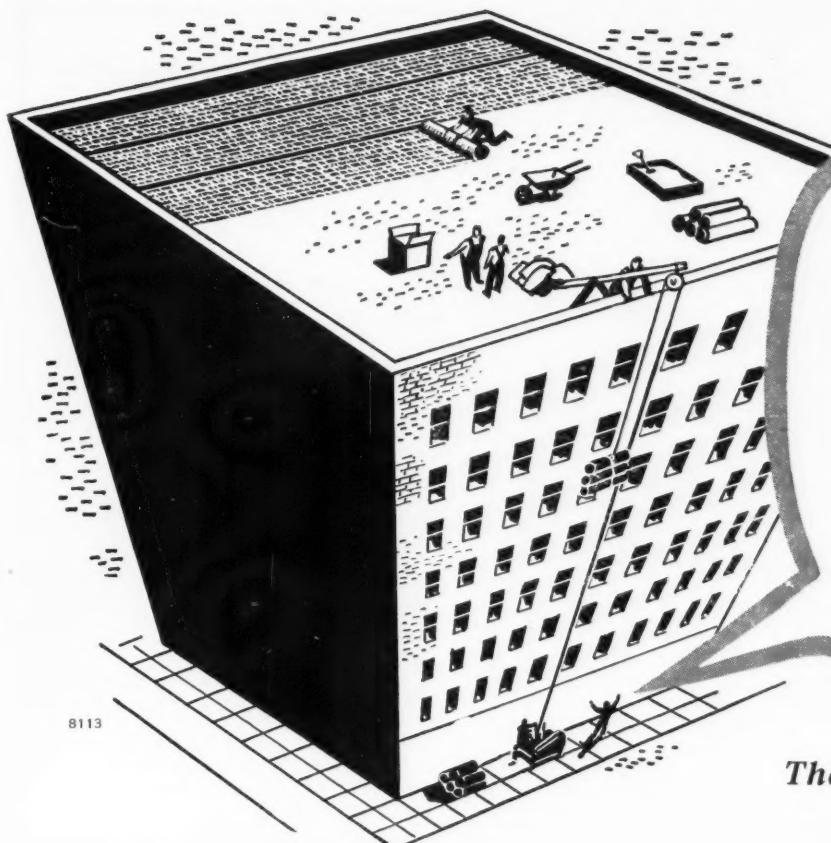
"For heaven's sake, Pete, you've seen girls swimming before!"

(Continued from page 134)

has been made manager of the **Bailey Meter Co.**'s Milwaukee, Wis. branch office . . . **John R. Bergan** is merchandising manager of a new department of the **Minneapolis-Honeywell Regulator Co.**, which will supervise and coordinate advertising, merchandising and sales promotion activities . . . **Joseph L. Hegener** has become secretary-treasurer of the **McCulloch Motors Corp.**, Los Angeles, Calif. . . . **Archie Vincent**, formerly structural engineer for the **Henry J. Kaiser Co.**, has been made general manager of the **C. S. Johnson Co.**, Champaign, Ill., a subsidiary of the **Koehring Co.**, of Milwaukee, Wis. . . . **The Four Wheel Drive Auto Co.** announces that **Donald B. Olen**, formerly chairman of the manufacturing committee, has been named director of the engineering division and **H. B. Dodge**, former director has been elevated to technical advisor to the management of the company. **G. D. Simonds**, formerly manager of design engineering has been named chief engineer in charge of design of standard **FWD** models. **B. G. Donley** is manager of development engineering on specialized products. **James A. Sorenson**, metallurgist for the company for more than 30 years, is now also research engineer.

DISTRIBUTORS—**Shipping Utilities**, St. Louis, Mo., is the new truck distributor for **Hyster Co.** in 36 counties of Missouri and 50 counties of Illinois. . . . **Paul N. Clemens** is exclusive agent in Connecticut, Massachusetts and Rhode Island for **Lithgow Corp.**, Chicago, applicators of resin baking finishes on tanks, pipe

(Continued on page 138)



*That's what they're saying
about the*

American Roofer's Hoist

RATING:

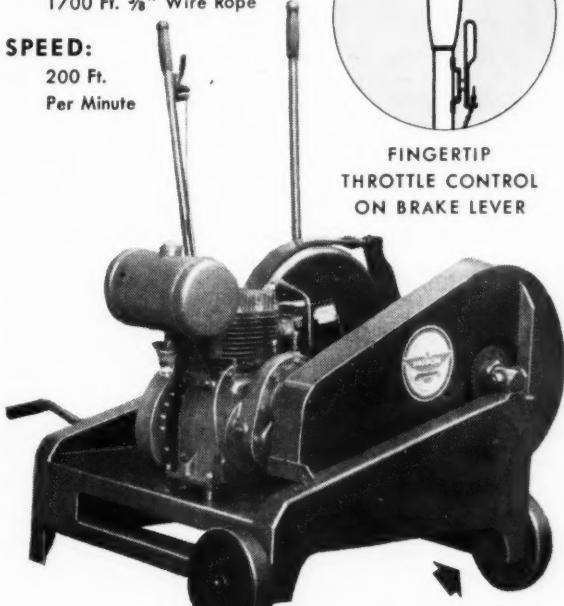
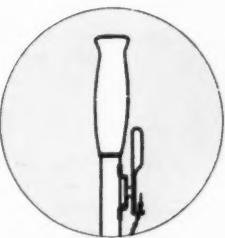
500 lbs. Single Line Pull

DRUM CAPACITY:

400 Ft. $\frac{3}{4}$ " Manila Rope
1700 Ft. $\frac{3}{8}$ " Wire Rope

SPEED:

200 Ft.
Per Minute



WELDED STEEL PLATE FRAME
WITH SLOT FOR
COUNTERWEIGHT TIMBERS

EASY-ROLLING
STEEL WHEELS

How does this sound, as a new way to reduce costs on both big and small construction jobs:

The AMERICAN Roofer's Hoist rides to the job on any light pick-up truck or trailer. You lift it up like a wheelbarrow, roll it down a couple of planks and wheel it right to the spot where you want it. Insert a heavy plank into the slotted frame and weight it down as needed. Then, rig your line to the roof, pull the starter cord on the engine, and you've got the job moving . . . in a matter of minutes. 500 lb. loads go up at a speed of 200 feet per minute.

Operation is wonderfully simplified. Finger-tip throttle control is right on the brake lever. Big 14" disc clutch, and 16" external band brake, give instant, accurate control of the load. Engine is governor-controlled at all speeds.

The AMERICAN Roofer's Hoist is really new . . . really different . . . really perfected. Three years of punishing tests by the world's largest manufacturer of hoists assure complete efficiency, safety, and satisfaction on the job.

Call your distributor, or write us direct, for prices and Catalog C-2. Immediate delivery from stock.

American Hoist and DERRICK COMPANY

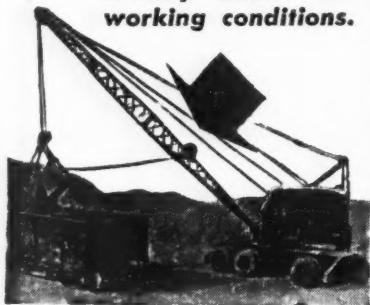
St. Paul 1, Minnesota

Plant No. 2: So. Kearny, N.J.

Sales Offices: NEW YORK • CHICAGO • PITTSBURGH

RUD-O-MATIC TAGLINE

Provides positive, steady tension — holds buckets steady under all working conditions.



Spring tension holds buckets steady. No weights, pins, tracks, or carriages. Cable saving more than pays for RUD-O-MATIC. Compact—easily installed. Eight models to fit all bucket sizes.

RUD-O-MATIC Taglines are used as standard equipment by most crane manufacturers. Spring tension is powerful enough to hold a clam shell bucket steady. Operates with boom at any angle. Compact—it can be installed in less than thirty minutes. No pins, weights, tracks, or carriages to wear or be replaced. Taglines are complete with fairlead U bolt clamping plates, and cable attached. Immediate delivery—see your equipment dealer—or write—

• Dealers—selected territories in Midwest and Northwest are still open. Write for all details.

RUD-O-MATIC combination Magnet Reel and Tagline . . . operates on spring tension principle with tagline attached to magnet to steady—and electric cable fastened to magnet connections with all slack needed to prevent cable from being pulled or jerked loose from connections. Exclusive with RUD-O-MATIC.

The RUD-O-MATIC is the Tagline with the fool-proof coil spring!



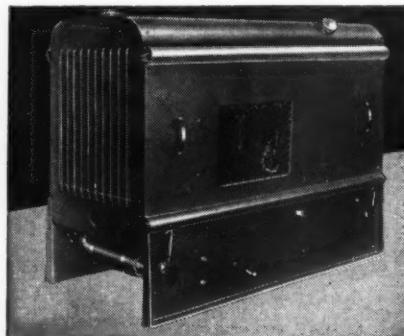
**McCAFFREY
RUDDOCK**
Tagline
Corporation

2131 East 25th St., Los Angeles 11, Calif.

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and other equipment . . . Ritchie Equipment Co., Ltd., Vancouver, B.C., is direct factory distributor for Davey Compressor Co., Kent, Ohio.

PERSONALITIES—J. J. Murray is export manager for Hewitt-Robins, Inc., New York . . . Paul H. Weiderman is general manager of The Union Iron Works of New Jersey Co., Inc. . . . C. M. Gegenheimer is district manager for Marion Power Shovel Co. at Chicago . . . W. P. Gillespie is manager of the market requirements department of Henry Disston & Sons, Inc., saws, tools and special alloy steels . . . O. D. Shepard has been elected president of D. C. Elphinstone, Inc., construction equipment, Baltimore, Md., and Washington, D. C. . . . Otto J. Hartwick has been named technical director of the Houston paint division of Pittsburgh Plate Glass Co., M. G. Gardner of the Newark, N. J. division, and R. T. Ubben at Milwaukee, Wis. . . . E. P. Newhard is operating manager of the Pennsylvania-Dixie Cement Corp., New York, in place of C. J. Lofstedt, resigned . . . Melvin A. Staben is district manager for all industrial business of the Oliver Co. in Oregon, Washington, Idaho and Montana . . . Geo. S. Ames is special representa-

(Continued on page 140)



LOW-COST ELECTRIC POWER!

Convenient electric power is available to you . . . anywhere! Fairbanks-Morse offers performance-proved generating plants that give reliable service, even under heavy loads, for years! There's a model to meet your specific requirements. Excellent standby units. Available in capacities 350 to 35,000 watts . . . A.C. or D.C. automatic or remote control. Write Fairbanks, Morse & Co., Chicago 5, Ill., for folder ADB-400.

FAIRBANKS-MORSE

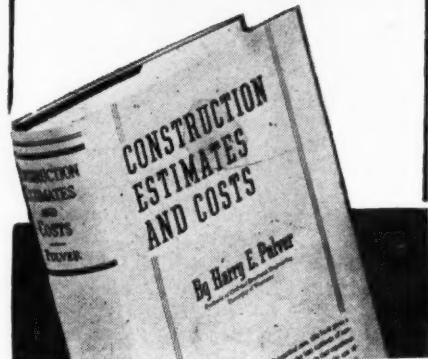


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DIESEL LOCOMOTIVES • DIESEL ENGINES • STOKERS • SCALES • MOTORS • GENERATORS

QUADS • RAILROAD MOTOR CARS AND STANDBY • FARM EQUIPMENT • MAGNETOS

How to estimate construction costs — quickly! — accurately! Revised 2nd Edition



Meets all estimating problems with complete data and modern methods. A valuable tool for the contractor, architect and engineer.

CONSTRUCTION ESTIMATES and COSTS

By H. E. PULVER

Civil and Structural Engineer
653 pages, scores of tables and diagrams,
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presentation

The book gives step-by-step instructions for estimating construction work of all kinds, including excavations, all parts of buildings, concrete, structural steel, and material transportation, profit, overhead, etc. These combined with useful tables, diagrams and illustrative estimates, make this a complete manual of estimating for the contractor and engineer.

All these practical helps

Estimating by simple arithmetical methods—covers all steps: investigation, approximate estimate, complete detailed estimate—includes such elements as plumbing, waterproofing, electrical, heating and air conditioning—many illustrative, worked-out estimates of typical jobs—now fully revised in line with upward trend of wages and prices—a working guide for the beginner—a key to safer bids, better profits for all estimators.

10 DAYS' FREE EXAMINATION

McGraw-Hill Book Co., Inc., 330 W. 42nd St., N.Y. 18
Send me Pulver's CONSTRUCTION ESTIMATES AND COSTS for 10 days' examination on approval. In 10 days I will remit \$6.00 plus few cents postage, or return book postpaid. (Postage paid on cash orders.)

Name _____

Address _____

City _____ Zone _____ State _____

Company _____

Position _____

CM-10-48



1,000,000 miles young— still going strong

Since 1940 the D-600 International tractor, above, has hauled livestock between Chicago and New Boston, Illinois, for the Murdock Trucking Company. This tractor has now operated 1,000,000 miles on Stanolube HD Motor Oil, with extremely low maintenance cost. What's more, it is still going strong after almost nine years' service.

There is a wide variety of equipment in this fleet, all operating on Stanolube HD. The customer reports, "We have noticed that by using Stanolube HD, we have greatly extended our engine life. Bearings and wrist pins last 100,000 miles and rings last 70,000 miles. Valves require servicing only at 40,000 to 50,000 miles."

Put Stanolube HD Motor Oil in your fleet. Keep engines younger longer. Standard Oil Company (Indiana), 910 South Michigan Avenue, Chicago 80, Illinois.



E. C. Murdock of the Murdock Trucking Company and R. C. Elgas, Standard Oil Automotive Engineer, in front of the D-600 International tractor that has operated 1,000,000 miles.

Stanolube HD Motor Oil

STANDARD OIL COMPANY (INDIANA)



3 cu. ft. of Asphalt in 30 seconds

Think what that means on those patching jobs! Fast operation, easy transportation from job to job (just tow it back of a truck or car) and an unusual mixing principle introduces a new economy to maintenance work on streets, roadways, walks, parking areas, floors and asphalt waterproofing jobs.

Write for full particulars on the operation of this unusual asphalt mixer. Let us send you Bulletin K-100.

Builders of...

Adnun Black Top Pavers,
MultiFoote Concrete
Pavers, and Foote Kinetic
Mixers.

The **FOOTE**
Kinetic
mixer



FOOTE

MULTIFOOTE CONCRETE PAVERS
ADNUN BLACK TOP PAVERS
Kinetic ASPHALT MIXERS

THE FOOTE CO., INC.
1910 State Street
Nunda, N.Y.

See ad on page 103

CONTRACTORS RUBBER PRODUCTS

available from Stock for immediate Delivery

CONVEYOR, ELEVATOR and TRANSMISSION BELTING

all widths and plies

V-BELTS all sizes

HOSE all sizes

AIR	WATER	SUCTION	COMPRESSOR
FUEL	STEAM	WELDING	PILE DRIVERS
FIRE	VACUUM	DISCHARGE	ROAD BUILDERS
and BOOTS, DREDGE SLEEVES, PUMP DIAPHRAGMS, ETC.			

and everything rubber for Industrial Requirements

PHONE . . WIRE . . WRITE

Write for new catalog

CARLYLE RUBBER CO., Inc.

62-66 PARK PLACE NEW YORK 7, N.Y.

Phone: BArclay 7-9793

(Continued from page 138)

tive of the service department of Findlay division of Gar Wood Industries, Inc., and John D. Blood is division service manager . . . R. F. Dierking is manager of west central offices of the Portland Cement Assn., succeeding R. M. Winters, resigned. Fred F. Loy is the new Iowa district engineer to succeed Mr. Dierking . . . Wm. A. Penrose is now assistant secretary of the American Wood-Preservers' Assn. . . Frank Bochman will handle sanitary engineering in Florida for The Dorr Co., New York.

MISCELLANY—The Wheelco Instruments Co. has opened a new office at 138 East Becher St., Milwaukee 7, Wis., with M. A. Embertson in charge . . . Armco Steel Corp. has contracted to purchase the assets of the Jackson Tube Co., Inc., Piqua, Ohio, to be operated as the tubing division . . . the 50th anniversary of the founding of the Marquette Cement Mfg. Co., Chicago, is now being celebrated where the company's principal plants and offices are located — LaSalle, Peru, Ill. Cape Girardeau, Mo. Des Moines, Iowa, Nashville, Tenn., and Cowan, Tenn. . . Rubber lining of storage tanks, tank cars, pipe lines and other equipment will be added to other products of the Tuscaloosa, Ala., plant of the B. F. Goodrich Co. . . U. S. Pipe and Foundry Co. will build a plant at Richmond, Calif., for cast-iron pressure pipe made by the centrifugal process . . . Activated Alum Sales Corp., 516 N. Charles St., Baltimore, Md., has been organized to be active in the water-works field . . . A 3-year program for extension of development and production operations has been started by the Brown division of Minneapolis-Honeywell Regulator Co. as the second step in its \$2,500,000 physical expansion . . . Expansion and modernization costing more than \$80,000,000 has raised the production capacity of U. S. Rubber Co. to the highest peak in its history . . . Pettibone Mulliken Corp., Chicago, has bought the Universal Engineering Corp. of Cedar Rapids, Iowa, manufacturers of crushing machinery and allied equipment for rock and gravel plants . . . Robins Engineers division of Hewitt-Robins, Inc., has tripled its backlog of contracts in its first eight months as a separate division . . . Timken Roller Bearing Co. has announced that all products of the steel and tube division will be sold, quoted and invoiced f.o.b. mill . . . Unit Mfg. Co., Columbus, Ohio, has acquired the facilities of the Bigelow Mfg. Co. The purpose is to make and sell brake service and materials handling equipment . . . Consolidation of the shops and piston ring division of Koppers Co., Inc., into a new metal products division is taking place.

Better have him check your spooling



Bad spooling, the Bethlehem man says, is like burning up hundred-dollar bills. Whenever he sees a wire rope that's improperly spooled, he knows that its useful working life is being shortened. There are few more abusive practices than bad spooling, and each time it happens it puts you in line for higher rope expense.

Maybe you never stopped to consider this angle. But here's what the Bethlehem field engineer will tell you:

When wire rope is not spooled in smooth, even layers, the resulting cross-wrap can be very damaging. Rope that does not follow its true course around the drum is subject to unnatural pressures that crush and distort. A crushed rope soon becomes unsafe and is headed for the scrap pile. This means needless expense—money that could have been saved had the proper steps been taken.

If you're having spooling trouble, ask the Bethlehem field man to look over your set-up. Usually he can help you iron out the trouble in short order. And later, when it's time for new lines, he'll be glad to recommend the sizes, grades, and types of ropes that will do the best job for you.

He's available through your nearest Bethlehem sales office or distributor. When you need his help, telephone. His services don't cost you a penny.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

*On the Pacific Coast Bethlehem products are sold by
Bethlehem Pacific Coast Steel Corporation*

*Export Distributor:
Bethlehem Steel Export Corporation*



When you think WIRE ROPE . . . think BETHLEHEM



The versatile air hose coupling for every construction job. Quick-acting, universal type. Plain design; strong, durable, safe. Malleable iron (cadmium plated) or bronze. Hose ends with shanks; male and female I.P.T. ends. Shanks for hose are long, well corrugated and smoothly finished. Sizes $\frac{1}{4}$ " to 1".



I.P.T. Female End
Sizes $\frac{1}{4}$ " to 1"



I.P.T. Male End
Sizes $\frac{1}{4}$ " to 1"

Locking heads are same in all sizes of hose and threaded pipe ends. Any two sizes of hose, or hose and pipe, within the coupling's size range, can be quickly coupled without extra fittings of any kind.

Patented Locking Arrangement

Designed for positive safety in services involving excessive twist or vibration. Locking ends are fastened together in such a way that they cannot come apart until locking device is removed.

Stocked by Manufacturers and Jobbers of Mechanical Rubber Goods.

IF IT'S A **DEXON** PRODUCT

IT'S DEPENDABLE

DIXON
VALVE & COUPLING CO.
Main Office and Factory: PHILADELPHIA, PA.
BRANCHES: CHICAGO, BIRMINGHAM, LOS ANGELES, HOUSTON

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WHERE TO BUY

Featuring Additional Products,
Specialties & Services for
the Construction Industry

COMPLETE WELL POINT SYSTEMS WILL DRY UP ANY EXCAVATION

Faster—More Economically

Write For Job Estimate and 32 page Catalog

COMPLETE
MACHINERY & EQUIPMENT CO., Inc.
36-36 11th St., Long Island City, N. Y.
Tel. IRonsides 6-8600
Branch: Third Avenue & Adams St., Gary, Indiana
Telephone: Gary 23983

Waterproof with Formula No. 640

A clear liquid which penetrates 1" or more into concrete, brick, stucco, etc., seals—holds 1250 lbs. per sq. ft. hydrostatic pressure. Cuts costs: applies quickly—no mixing—no cleanup—no furring—no membranes. Write for technical data—free sample.

HAYNES PRODUCTS CO., OMAHA 3, NEBR.

STERLING
QUALITY

STERLING PUMPS

CHOICE
OF
LEADING
CONTRACTORS
EVERWHERE

STERLING MACHINERY CORPORATION
405 Southwest Blvd., Kansas City, Mo.

ATLAS
CONCRETE
FORMS

Walls • Cylinders
Floors • Sewers

Irvington
FORM & TANK CORP.
Irvington 30, N. Y.

This

WHERE TO BUY Section

supplements other advertising in this issue with these additional announcements of products and services essential to official and economical operation in the construction industry.

SEARCHLIGHT SECTION

EMPLOYMENT • BUSINESS

OPPORTUNITIES

EQUIPMENT—USED or RESALE

UNDISPLAYED RATE:

\$1.20 a line, minimum 4 lines. To figure advance payment count 5 average words as a line.

POSITIONS WANTED (full or part time salaried employment only). $\frac{1}{2}$ above rates.

PROPOSALS, \$1.20 an insertion.

NEW ADVERTISEMENTS received by 10 A. M. October 26th will appear in the issue of November, subject to limitation of space available.

INFORMATION:

BOX NUMBERS in care of any of our New York, Chicago or San Francisco offices count 10 words additional in undisplayed ads.

DISCOUNT of 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

DISPLAYED—RATE PER INCH

The advertising rate is \$9.50 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured $\frac{1}{6}$ inch vertically on one column, 3 columns—30 inches—to a page.

FULL VIEW...JOB AHEAD WITH SITTING COMFORT

Living room comfort in a chair designed for Power Shovels, Cranes, Tractors, Graders, etc.



All metal . . . can be raised from 19" to 28" by hand lever. Seat moves forward or backward. Chair bolts down tight. Built for government . . . stands hard service. Now selling \$15 at . . . for below the price of production.

WEIL'S
20 South 2nd St.
Phila. 6, Pa.

FOR SALE

1—Scoopmobile, 1947, 3,000 lb. cap., $\frac{1}{2}$ yd. Bucket, 12 ft. track with extensions, lift fork attachment.
1—Pumpcrete, Rex, Single 160, with 436 ft. pipeline. New April 1948, used 3 months, reconditioned and repainted July 1948.
1—Tractor, Caterpillar, RD-4, 7 ft. Blade, rear power control unit, with Adams Hauling Scraper, Model 30, 3-5 yd.
1—Mixers, Concrete, Smith, 14 S, with Allis-Chalmers 10 HP, 440-Volt motor.

**RENIGER CONSTRUCTION
COMPANY**
127 N. Cedar Lansing, Mich.
Ph. 57291

OFFERING SUBJECT TO PRIOR SALE DRAGLINE

1055 LC P & H Dragline 80' of boom. Machine ready for delivery. Priced right for quick sale. In excellent condition. Write, phone, or wire the A. C. R. CO., 19615 NOTTINGHAM ROAD, CLEVELAND 10, OHIO Phone KEnmore 8000

FOR SALE

$\frac{3}{4}$ Yard Buckeye Shovel Front. Unused.

T. L. JAMES & CO., INC.
Kenner, Louisiana

PROFESSIONAL SERVICES

LANCASTER, ALLWINE & ROMMEL Registered Patent Attorneys

Patent Practice before U. S. Patent Office. Validity and Infringement Investigations and Opinions. Booklet and form "Evidence of Conception" forwarded upon request.

Suite 417, 815-15th St., N.W., Washington 5, D.C.

GOVT SURPLUS FOR LESS ORDER NOW

Hundreds of bargains available. Write for descriptive literature or outline your requirements and we shall quote prices.

ANVILS

CLAW BARS

BOLT CUTTERS

HANDLES

SAWS

TOOL BOXES

MACHINERY

MOTORS

TENTS

FIRE
EXTINGUISHERS

RESPIRATORS

STEP LADDERS

FORCES

PNEUMATIC CHAIN SAW

NEW
24-
INCH
\$235.00 EACH

Reed-Prentice Portable 24" Timberhog Saw. Operates on compressed air. Endless sawtooth chain. Complete outfit includes Instruction Manual, One Gallon Oil Can, Chain Container, Metal Tool Box, Files, Wrenches, Hammer and Miscellaneous Tools.

NEW 300 Lb. ANVILS

\$22.50

Rugged and strong—fine quality, smooth finish. 32 $\frac{1}{4}$ " long—14" high.

TERMS: Net 10 days
to satisfactorily
rated concerns.
Others please send
check with order.
All merchandise
f.o.b. Cincinnati
unless otherwise
specified.

New Ratchet Lever JACKS 15 TON JOYCE #1928 A

\$19.75 \$17.50
Each
Singly
Lots of Six
Mfrs. List \$66.00



One-man ratchet lever jack of great power. 60" steel handle, automatic lowering and double lever socket. Height closed 28" with 19" rise. Weight 94 to 98 lbs.

250 lb. ZIP-LIFT ELECTRIC HOIST WITH OR WITHOUT JIB CRANE

Handy push-button control. Positive electric brake holds the load at any point.
Hoist swings on crane or can be adjusted to your own trolley truck. Guaranteed in perfect operating condition. Some new; some slightly used—but they look like new!

HOIST INCLUDING \$99.00
TROLLEY
440 Volt, 3 Phase, 60 Cycle A.C.
Limited Supply F. O. B. Minneapolis
10 ft. standard, mounted on 30-in.
Jib Crane for above iron base. Trolley Jib is a 12' x 6'
1-Beam. Jib has complete 360-degree swing.

ROSE BROTHERS CO.

Main Office: 1402 HARRISON AVE., CINCINNATI 14, OHIO
Branches: CHICAGO, 20 W. Jackson; ST. PAUL, 187 S. Wabasha

CONTRACTORS' portable FIELD DESKS

Easily Worth \$25.00
\$6.75
EACH
\$60.00 Dozen
WATERPROOF



Metal bound fibercase. 29-1/4" wide, 25" high, 16" deep. Three drawers, four pigeon holes. Recessed pull handles. Two ink wells. Take insides out and use for trunk. Used, but in excellent condition.

NEW 12 FOOT STEP LADDERS

Strongly constructed of selected spruce. Steps supported by 1/4" truss rods and hardwood block. Bottom step supported by angle braces. Complete with bucket shelf board.

\$8.00 EACH
6 or more
New, but shelf worn





Equipment OUT IN FRONT EVERYWHERE!

TODAY'S CMC EQUIPMENT

is the finest we have ever built. Every single unit in the line has been designed for extra stamina, performance and economy.

CMC EQUIPMENT

is the kind of equipment you can buy with confidence that it will do the job.

For complete details see the nearest CMC Distributor or write for catalog.

**CONSTRUCTION
MACHINERY CO'S.
WATERLOO, IOWA**

Also

JETCRETE GUNS • TILT-TABLE SAWS
• BIN BATCHERS • BUCKETS • HOPPERS • DUMP-OVER
CARTS • ELECTRIC POWER PLANTS • • • • •

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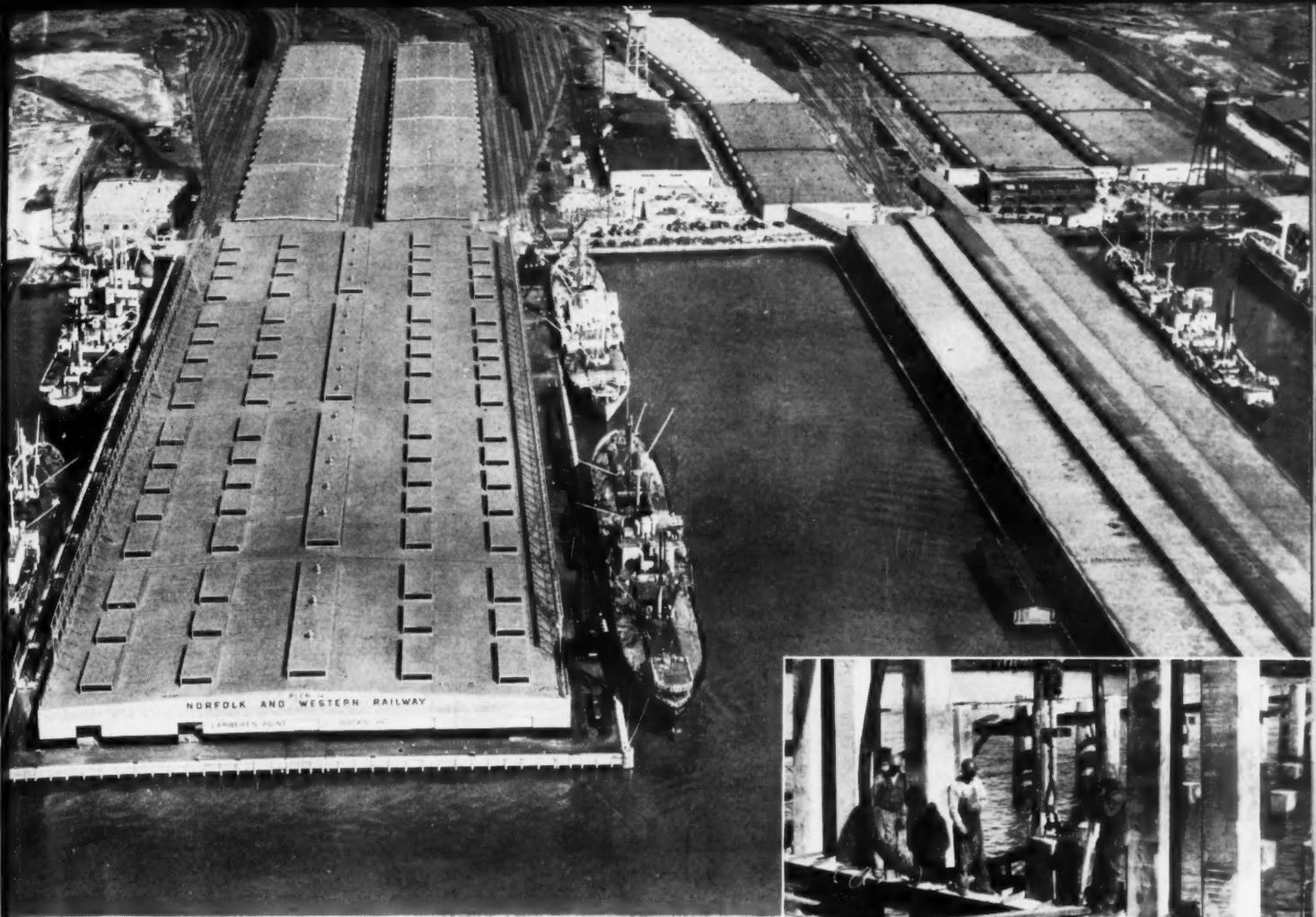
(Classified Advertising)

Equipment

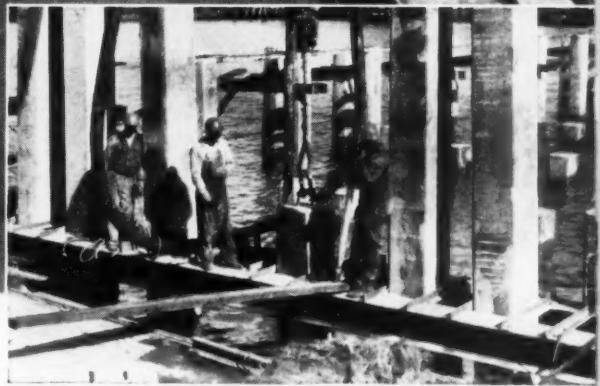
(Used or Surplus New)
For Sale

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70,000 Cu. Yds. of Pozzolith Concrete used in Construction of Piles, Piers and Abutments of New Norfolk and Western Ry. Pier N (left). Largest Single Deck Pier on Atlantic Seaboard. Contr.—McLean Contracting Co., Baltimore, Md.



Giant Norfolk and Western Ry. Pier built with POZZOLITH CONCRETE

OTHER MASTER BUILDERS PRODUCTS IN WHICH CEMENT DISPERSION IS EMPLOYED

EMBECO...

For non-shrink grouting and re-integration.

MASTERPLATE...

Industry's toughest floor . . . "the iron that stays on top."

OMICRON MORTARPROOFING..

Controls shrinkage cracks; minimizes leaky brickwork, also re-tempering; contains stearate.

The decision of Norfolk and Western to employ Pozzolith in this mammoth pier resulted from experience on previous projects where they used "a great quantity of Pozzolith with excellent results." In the 6,000 piles, piers, and abutments required for this ten-acre pier, Pozzolith, cement dispersion, provided the following advantages:

1. Plasticity and homogeneity . . . resulting in easier placing and better concrete.
2. High early strength . . . permitting quicker re-use of forms and driving of piles in 2 weeks after pouring instead of 3 as planned.
3. Great durability . . . providing important resistance to the corrosive action of sea water.

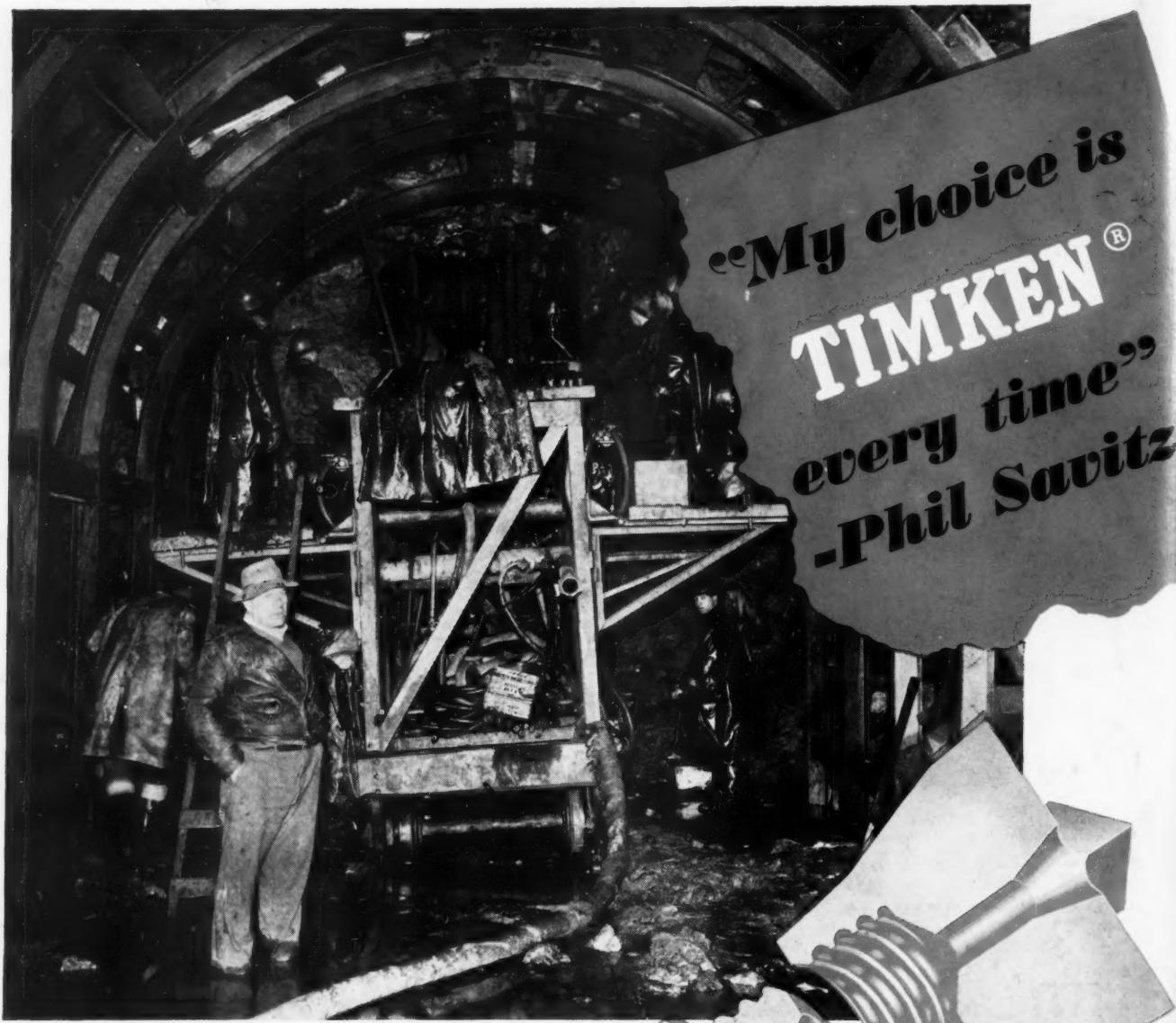
Normal concrete of *any given quality* is produced at lower cost with Pozzolith than by any other means, such as the addition of extra cement or of any other admixture either added at the mixer or interground.

Write for information and Pozzolith booklet.

MASTER BUILDERS

CLEVELAND 3, OHIO TORONTO, ONTARIO





Phil Savitz is the superintendent on the storm water tunnel job being driven for the city of Philadelphia by Robert Lombardi, general contractor. Mr. Savitz's full statement follows: "I have been on tunnel and other rock jobs in nearly every section of the United States and have used all types of bits. My choice is Timken every time."

When completed the Philadelphia water tunnel will be 1,800 feet long, 16 feet high and $13\frac{1}{2}$ feet wide. It is being drilled through mica schist and quartz rock. Timken Rock Bits are used exclusively on the job.

TIMKEN

TRADE-MARK REG. U. S. PAT. OFF.
ROCK BITS

Drilling is done with jumbo rigs, each mounting six, $3\frac{1}{2}$ inch piston drills operating at 90 pounds of air pressure. A "drill-up" of approximately 56 holes is accomplished in 40 minutes average time.

Commenting on the use of Timken Bits, Mr. T. E. Laws, general superintendent for Robert Lombardi writes: "Our past experience with your bits and the over-all economy obtained through their use were the governing factors in our decision to use them on this job. They have again proved their efficiency and economy. The drilling speed obtained through the use of Timken Rock Bits enables us to get a maximum number of 'drill-ups' per day and we expect to complete the job well ahead of schedule."

There's a Timken Rock Bit distributor at the other end of your telephone. Write for his name and address.

THE TIMKEN ROLLER BEARING COMPANY, CANTON 6, OHIO • CABLE ADDRESS "TIMROSCO"